RAILROAD GAZETTE

FRIDAY, AUGUST 18.

Contributions.

Tests of Tail Lights.

TO THE EDITOR OF THE RAILROAD GAZETTE:

I send you report of Mr. J. C. Prendergast, our Supervising Engineer, on test made with tail lights, thinking the matter may be of some interest to your readers.

The manner in which he made the test was as follows: Two stakes, 9 ft. apart, measuring 4 ft. 6 in. on either side from centre of track. Stakes were 7 ft. high, and on the top of each stake the lamps were hung.

First Test.—One red and one white hand lantern at a distance of 1,168 yards; red light barely visible, red and white lights showing a distance of about 3 ft. apart.

Second Test.—One red and one white bulls-eye lantern, 5 in. in diameter, at a distance of 1,752 yards; lights showing nearly together, red light well in sight; but at a distance of 1,898 yards red light disappeared, white light showing plainly.

Third Test.—Red bull's eye 5 in. in diameter, and red hand lantern. At a distance of 1,383 yards red light of hand lantern disappeared, and at a distance of 1,898 yards bull's eye was well in sight.

This is a matter of interest, and I would like to have the benefit of the experience of some others who have made a similar tests of tail lights. R. G. FLEMING.

Superintendent Savannah, Florida & Western Railway.

Conflictions in Classifications.

TO THE EDITOR OF THE RAILROAD GAZETTE:

The conflictions of the systems of classifying freight now in vogue on the various railroads of the country are great and seemingly needless. This fact is fully appreciated by at least the agents of various fast-freight lines, if by no one else, as they have daily come to see its evils. There are at the present time no less than 15 different classifications in use between Boston and New York, and the various shipping points Northwest and Southwest, and in the more distant Western states, which cause a great deal of trouble, both to the line men, the auditor's office and to the various clerks employed therein. A list of these will give the reader a better idea of the difficulties of the position.

To commence with, there is the Eastern trunk line classification, good only to billing points; the revised westward classification, the revised joint, the Union & Central Pacific, the Colorado, the Utah, the new Southern route to California, the Arizona & New Mexico, the St. Paul, Minneapolis & Manitoba and Northern Pacific joint, the Wisconsin, the Chicago Union, the Iowa trunk line, the Texas and the Mississippi Valley joint classification.

In Kentucky, a local classification prevails.

One can easily see that such a variety of rules governing the shipping of freight is a cause of great expense, especially to the middle links in the long lines which are forced by reason of it to maintain a large force of tracing and claim clerks to handle the vast number of claims which owe their origin to this source, and which, if it were not for the difference in classifying, would never exist. To be sure the existing forms of bills of lading are so worded as to let the companies over which the freight line issuing them operates out of every possible responsibility, the latest clause which has been inserted even going so far as to say: "This line, or carriers over whose line the goods are transported, will not be responsible for loss by fire or other casualty while in transit or at depots or landings at point of delivery." After going through a long list of accidents and happenings for which they will not be responsible, there is printed on the sides in large letters, "subject to difference in classification adopted by Western and Southern roads;" also, "not responsible for rubbing and chafing of goods in bales," ending with some lines in these words: "John Jones, Agent, not severally, but jointly."

The usefulness of any of these clauses, if contested in the courts, would readily be seen. Take the last clause, for example. We will suppose that 100 boxes of fish have been delivered to a freight line at its terminal point, and, as sometimes happens, ten of them disappear. According to the final clause mentioned above, all of the roads forming this line receipted for these fish, "not severally but jointly;" yet such a loss could not justly be called a line claim, and certainly it ought to be, and no doubt would be, charged to the terminal road from whose house the goods were stolen.

Take another clause of the present forms of bills of lading referred to above, and let a shipment be overcharged on account of the difference in classification, and if the shipper or consignee be even a fair-sized one, his claim is promptly paid, in spite of the clause printed in such large type, and the papers of the claim are sent to the general offices as "account of clerical error." This is being done daily by all freight lines, when a few meetings of general officers at some central point could remedy it by doing as the Louisville & Nashville general officers have sensibly done, by which Eastern trunk line classification governs all the business passing over their road, which originated east of Buffalo, Pittsburgh, Salamanca and other dividing points between the East and West. As it is, it requires a good head and long experience on the part of anybody quoting through rates to distant points on many kinds of goods, and an inquiry often necessitates the agent's return to his office to post up on classification, unless he has previously loaded himself down with tariffs of all Western roads. Let us take, for example, a shipment of furniture, set up, going, we will say, to Texas. From Boston or New York to Chicago, if it goes that way, it is rated at three times first class; at Chicago it takes the revised joint classification, where it may become four times first-class freight, or if it is released, three-times first-class. At St. Louis, as it starts South, it is classified lower than it was at its initial point, viz.: at 1½ times first-class. It would certainly seem as if no one of these roads took any more risk than did the other, and can any one show any good reason why it should not have been classified the same through?

Another good example is granite or marble, wrought. We will suppose that a shipment is offered for Salt Lake City, Utah. By the Eastern Trunk line rules, whatever state it may be in, it is taken as fourth-class freight. From Chicago to Omaha, under the revised westward classification, which governs between these two points, the marble becomes first-class freight. It hardly seems as if a difference of four classes was necessary east and west of Chicago. At Omaha our shipment becomes Class B, and if it is lettered it *must* be prepaid. At Ogden, Utah, it returns to a first-class state again, regardless of the amount of finish on it. Surely it is quite an undertaking and a seemingly useless trouble to quote correct rates on such shipments to certain points, and a marble dealer having a number of shipments to make to different parts of the country might well say simply to the question, "What class freight have you got to ship?" *all classes*, for such his shipments would be.

One more example I will mention, and that is gunpowder. The risk on this cannot but be equal on all east and west shipments, where there is no danger from the heat of the sun, yet, an inquiry being made not long ago for a rate on a car load of this material to a Western point, the answer was given, by the General Freight Agent of a Eastern road, that he would make it first class, but that he did not know what the remainder of the roads in the line would make it, and that he would have to ask by wire.

In view of all these facts, it would seem as if the present state of things could be improved upon, and the wisest plan to follow would be to adopt a uniform classification on all freight originating at certain points, no matter where it was going to; and probably if the general officers of the Western roads who receive freight from the various fast-freight lines could have their attention called to the evils of the present system it could be remedied. Of course each road is entitled to its own classification, and many put this on line freight; but a few meetings and uniformity in classifying would save much trouble and vexation. VOX.

Work at Altoona.

TO THE EDITOR OF THE RAILROAD GAZETTE:

So much has already been written about the shops here, and so many of the *Railroad Gazette's* readers are familiar with their general features, either by personal experience or otherwise, that I shall enter into but a few details and those of a miscellaneous character, being more particularly upon methods of organization and labor.

THE DEPARTMENT OF MOTIVE POWER.

The Superintendent of Motive Power of the Pennsylvania Railroad has peculiarly varied duties, coming possibly with the circumstances which made Altoona the headquarters of a grand division, the store-house of many divisions and finally the greater manufactory of the road and thereby the place of establishment and supervision of standards.

All these offices are fulfilled by the department, for Altoona is merely an extended Motive Power Department, incidentally controlled by a grand division of the road—in other words, it is at once dependent upon the General Manager's office and upon the Superintendent of the Pennsylvania Railroad Division; it controls in a various way the motive power of the Pennsylvania Railroad and of the United Railroads of New Jersey divisions and of the entire main line; it maintains a supervision as to standards over all operated roads east of Pittsburgh, and over the Philadelphia & Erie Division, and acts as Superintendent of Motive Power for the Philadelphia, Wilmington & Baltimore and the West Jersey. It has also other duties which it is the object of this letter to describe in detail.

It should be premised, however, that the feeling and polity of the Pennsylvania road are not autocratic. The duties of the departments, and in each department, are not merely divided formally but in fact; control and responsibility go together, not alone from the President, in order, to the General Manager, but downward, department by department, to the foreman of a shop. There are indeed officers whose duties by the necessities of the organizations are practically supervisory, but I think I do not misrepresent the facts when I say an officer of the road respects his subordinates as well as his superiors, and advises with and trusts them, as not merely assistants but as principals of subordinate departments.

Those who admire the method and system of the road should not forget that it is the outcome of a uniform principle, making the head of each subdivision of labor its representative as well as a mere subordinate in charge of orders emanating from his superiors.

THE MOTIVE POWER DEPARTMENT OFFICE.

The motive power office may be said to have three divisions—the drafting room, the accounting room, and the room of supervision of stores and supplies. The drafting room is the office of the Mechanical Engineer, and of those in charge of designs for rolling stock of all kinds; the accounting room is the office of the chief clerk, who has supervision over all motive power accounts—*i. e.*, over all accounts of the shops of the main line, the United Railroads of New Jersey, the Philadelphia, Wilmington & Baltimore, and the West Jersey, and over the supplies furnished to these divisions and roads so far as they are matters of account. A master mechanic desiring oil or waste, or a master car-builder needing lumber, makes requisition on the Superintendent of Motive Power. This requisition is received by the room of supervision of supplies; in case such stores are anywhere at hand either at Altoona or any nearer shop, they are forwarded on order of the Superintendent. If, however, it is necessary to purchase them, a requisition is made by this room on the Purchasing Agent, signed by the Superintendent of Motive Power, and forwarded to the General Superintendent of the division from which the order is received; by him it is signed and forwarded to the Purchasing Agent, who, after conference with the General Manager, as a matter of his department, makes the purchase. When the goods are received at the shop for which the purchase is made, the fact is certified to the Purchasing Agent on the duplicate bill received from him; and at the close of the month an account of these and of all other stores in any way received is sent to the accounting room (of the Motive Power Department) by the shop clerk, with his other accounts.

On the books of the local shops are kept the coal and other engine material accounts; these also reach the Superintendent of Motive Power through his chief clerk of accounts who makes up detailed statements of cost of materials to mileage per engine. These statements are again worked over by a clerk in the room of supervision of supplies, who makes up tables of comparison with former months and years, and sends reports of detailed expenses, with percentages, of each sub-division to its Superintendent. It is the policy of the road to inform each commanding officer what his division is spending and earning.

THE MACHINE SHOPS.

Although all of the shops of those portions of the road which we have several times enumerated are under the care of the Superintendent of Motive Power, the Altoona shops are more immediately under his direction through the Master Mechanic and the General Foreman of the car shops; these being places of manufacture more than of repair, and repairs falling more directly to the local officers of divisions and shops. Through his accounting and supply departments he has supervision over repairs as made, but naturally he assumes less immediate direction of repairs than of new construction.

The machine shops, or master mechanics' department, consists of blacksmith shops (3), boiler shops (3), flue shop, wheel shop, vise shop and machine shops proper (2), erecting shops (2), paint shop, air-brake repair shop, shop for the manufacture of telegraphic apparatus, the iron foundry, brass foundry, the wheel foundries, and the general store. These employ about 2,700 men, whose number will probably be increased on the completion of new shops now building.

THE BOILER SHOPS.

All the work of the boiler shops is laid out by one man, and in general, special work is the rule, with advantage to the immediate work in hand. One of the shops is almost entirely devoted to repairs. The shops for the work contain one steam riveter and one hydraulic riveter, 60 per cent. of all rivets being fixed by these machines, at less cost and with greater uniformity than by hand. We shall refer to methods of rating labor at some length, and should remark here that piece-work is not without its limits in the boiler shop. Riveters seldom work by the piece, or only on work which is open to easy inspection.

Besides locomotive boilers, many boilers for stationary engines, reservoirs for gas and tanks for pumps are here manufactured.

THE MACHINE SHOPS PROPER.

These are fitted with the latest and most approved forms of machines, and have probably been the means of extending the use of improved machines to many other shops. Mention might be made of the double-headed slotters (for slotting pedestals), of which there are three; and also of the double-headed planers, each of which has four tools, and will plane four stub ends of connecting-rods at one setting. Milling tools are used in place of planers where possible—as on the fillets of connecting-rods. Every piece is worked to template, and all measurements are made by standard metal gauges. These are kept in the tool department of the shop, and for each implement taken a brass check bearing the workman's number is left and hung at the space left by the loan.

There are two systems of rating labor at the Altoona shops—by the hour and by the piece. So far as possible, the latter is the preferred system; but it is in neither universal nor constant use, because there are varieties of work to which it is not adapted, and because the amount of regular piece work in any shop is limited. Men doing a variety of work, or doing a kind of work which has not been priced, and in general low grades of unskilled labor, are rated by the hour; machinists, painters, carpenters and the larger mass of skilled labor are rated while at regular work by the piece.

In the machine shops, account of time labor is taken daily by the general office: of piece labor, by each shop foremen's clerk, who reports it to the general office once a month; there is thus on the accounts a daily distribution of time labor and a monthly distribution of piece labor. The check and pay rolls show the amount of each kind of labor and its rate.

The justice of the general plan is evident in the fact that each man receives what he earns, measuring his actual

results by the rate of labor which competition has fixed. Under the stimulus of getting all they can earn the men accomplish 30 per cent. more than when their work is merely averaged in the mass.

The company does not agree to keep the laborer employed; but it is the custom to use all unemployed hands as far as the work will allow, paying for irregular, unusual or varied work by the hour. As a fact, men work with more interest and forethought by the piece than by the hour, and it is, therefore, to the interest of the company, as well as of the men, to use the system of piece work as far as conveniently possible—it is a practical proving of the theoretical, economical conclusion that under a just system the interests of labor and capital are the same, namely, to produce the greatest amount of capital by the least loss of it. It also fulfills the speculative requirements of the principle of competition, because it is found that of the same grade of machinists some are peculiarly fitted for special pieces of work in their ability for rapid production of that special kind. Others excel in other kinds; only under the stimulus of piece work is the special aptness for rapidity of special production fully tested.

The gentlemen in control here deserve great credit for the method in which they have introduced this solution of the labor problem. No other gift to the 5,000 laborers here employed could have been half so valuable as this simple system, which has stimulated every man to increased effectiveness and thereby not only increased his pay, but has made whatever leisure he may earn by harder labor more valuable—for there is no way of giving anything value but by increasing its cost or diminishing its quantity—and in the case of leisure, the former method is by far the most effective. The increased cost of piece labor in the way of accounts is something, but hardly worthy of consideration—possibly one extra clerk, rated low as to wages, to 300 men.

It is the opinion of everybody here that it would require many more hands working by day's labor to turn out the same quantity of work.

METHODS.

As we have already stated, the Master Mechanic is the head and director of the shops. In his office is a case in closing a board, painted with the names of the principal shops, as "boiler shop," "erecting shop," "round-house," "paint shop," and the word "sidings" as a place of waiting for engines seeking repair. Opposite each of these names is a series of pegs, and below in a line a full set of small slates to hang thereon, each slate having a line of color to indicate a division, grand divisions being indicated by single colors, and branch divisions by a mixture of colors.

This case properly arranged for the day at once shows the Master Mechanic, who sits opposite it, the condition of work on each engine under repairs, and the work on engines in any shop—each little slate being marked with a full record of an engine, and hung opposite to the name of the shop at which it has arrived, for example :

$$\frac{3}{18}\quad \frac{E}{520}\quad \frac{5}{14}$$

No. 2.

E $\frac{6}{20}$, B $\frac{6}{24}$, E $\frac{7}{10}$, T $\frac{8}{1}$, P $\frac{8}{4}$.

As a slate record indicates that class E engine, No. 520, needing No. 2 repairs, arrived 5th month, 18th day, and it is hoped will be fit for road 8th month, 14th day, it entered Erecting shop 6th month, 20th day, the Boiler shop 6th month, 24th day, returned to the Erecting shop 7th month, 10th day, was placed in the round-house on Trial 8th month, 1st day, and finally entered the Paint shop 8th month, 4th day.

Repairs are classified as to nature as follows: No. 1, new boiler and general repairs to machinery; No. 2, new fire-box and general repairs to machinery; No. 3, re-setting tubes and general repairs to machinery; No. 4, re-setting of tubes, turning of tires and slight repairs to machinery; No. 5, slight repairs, such as facing valves, etc.

With each engine there is sent to the shop it enters a schedule giving facts similar to the above, and a detailed list of repairs done by that shop, and likewise under the shop headings, by every other shop, with the regulation time allowed for each piece of work. This schedule goes with the engine as she makes her round for repairs.

New work is treated in a similar manner. The shops last year built 102 engines, 29 for passenger and 73 for freight service, and made general repairs on 38 passenger and 111 freight engines—slight repairs on 20 passenger and 111 freight engines in great number, done in the round-houses, not included.

The standard engines of the road are as follows :

Designation.	Drivers.	Cylinders.	Truck.
Class A.	4, diam. 66 inches.	17×24 inches.	"
" A. anthracite	4, " 68 "	17×24 "	"
" B.	4, " 60 "	18×24 "	"
" BA.	4, " 68 "	18×24 "	"
" C.	4, " 60 "	17×24 "	"
" C. anthracite	4, " 60 "	17×24 "	"
" D.	6, " 54 "	18×22 "	"
" E.	6, " 50 "	18×22 "	"
" F.	6, " 44 "	15×18 "	None.
" G.	4, " 55 "	15×22 "	Truck.
" H.	4, " 44 "	15×22 "	None.
" I	8, " 50 "	20×24 "	Pony.
" K.	4, " 78 "	19×24 "	*
" L.	4, " 62 "	17×24 "	
" M.	6, " 50 "	19×24 "	None.

* Two trucks, one pony, one of six wheels.

Anthracite engines are used on the New Jersey Division; Class I was built for the heavy grades of the Pittsburgh Division, but is now used on all divisions; Classes F, H and M are shifting engines, the last still unrepresented on the road, but in preparation; Class L is a double-ender, built for accommodation passenger traffic from Philadelphia. Its one representative has been popularly designated "Jumbo."

THE FOUNDRIES.

There are no shops at Altoona more interesting to the visitor. The foundry for soft iron (in distinction from the wheel foundries), does a great variety of casting, from a steamboat's cylinders down to the ratchet of a brake wheel, turning out nearly everything needed by the road in castings, but running chiefly on locomotive and car irons.

As far as possible flasks are dispensed with and the quantity of "snap" casting is constantly increased, and where flasks are used, iron is replacing wood as material. There is a variety of ingenious hand-molding machines, and one steam molder for journal-boxes, by which five men turn out 150 boxes per day—a greater number with less labor and more uniform result than by old methods.

The hand-molding machines for brake rubbers mold six rubbers to the flask, and produce eight tons of rubbers per day—16 lbs. of metal in each rubber—about 12,000 rubbers *per diem*.

There are also hand machines for molding brake blocks—two sorts, one for freight, one for passenger cars. After cleaning, each rubber is fitted to sample block and keyed with a sample key; there are, therefore, practically no misfits, but every rubber is ready for immediate service, which cannot be said of all purchased rubbers. Moreover, no accummulated stock is necessary; the finished articles are immediately shipped as manufactured, and production increased on demand, for which increase the piece method of rating proves a most efficient stimulus. Finally, the article is produced at less cost to the company.

An interesting piece of work is the hand machine for molding brake ratchets. The ratchet formerly required drilling and slotting, but is now cast with hole and key-way, needing no further work.

Perhaps, however, the most economical pieces of machinery are the cleaners—cylinders in which the rougher castings are cleaned by attrition; and the steam crane made by Sellers & Co., of Philadelphia, lifting 25 tons, to all positions, under the control of one man.

The other cranes of the foundry are moved by hydraulic power, as also are the lifts, one of which, at the door of the cleaning shop, has proved a great time-saver in loading cars There is an hydraulic accumulator in the engine room which supplies the power, itself worked by two Worthington pumps.

The prevailing feeling of the road for order and system is shown in the close inspection of castings, the exactness of the estimate for metal needed in the cupola, in even the condition of the flask yard, and last, but far from least, in the admirable arrangements for cleanliness. There is an upper room, furnished with a long washing trough, and also with seven separate rooms, each having a bath tub with cold and hot water attachments; the whole under the care of a janitor.

The Brass Foundry is an excellently appropriate one, and turns out all kinds of brass castings. The phosphor-bronze bearings are cast here. The bearings are bored in the pattern shop and probably at less expense than elsewhere. The only difficulty to be overcome is to cut below the sand crust; the wear of tools is by the crust, and may be avoided; 13,000 have been bored in one month by two men with two machines; the average is 6,000 to 7,000.

It is worthy of remark that the company makes a distinction in tone between its whistles for freight and for passenger engines, and that a similar attempt of difference in note for engine bells failed because of the narrow bounds of the bell-yoke. Various compositions were tried, but without a resulting difference of sufficient note.

SUPPLIES.

The foreman of the pattern shop is in general charge of all the castings of the shop—that is to say, all orders for castings come to him. Patterns are classified by letters, as Class V car castings, Class X locomotive castings, and each article has a number by which it may be ordered. The foreman of the pattern shops keeps also a catalogue of castings, grouped as used in each standard engine. The same pattern may enter into several standard engines, as cylinder head 1,032 into classes B, D and E; smoke-box door 2,056 into A, B, C, D, E, C anthracite and I. In the general catalogue castings are classified only under their names and by their numbers, the classes of engines into which they enter being given as above.

Orders for patterns are made by the Master Mechanic on the foreman of the pattern shop, and always in writing. His orders are also in writing and state the number required, and must be signed by the molder who fills the order, that any defective work may be traced to its source.

The store of the machine shops is also a general store for nearly the entire road. One or more cars under the care of a conductor leave regularly on Tuesday, Thursday and Saturday eastward, on Wednesday and Saturday westward, and on Friday southward, carrying supplies which have been ordered. Castings of all kinds are loaded from the shipping room of the foundry under the direction of the conductor of the car in order for convenient delivery.

The store of the shop has charge of recording all materials received or delivered, keeping no other books than those of record, and reporting to the chief clerk of the shop accounts

ERRATA.

In the article entitled "Testing Materials at Altoona," published Aug. 4, it was said that the "specifications for soaps now require that they shall not contain more than one-half of 1 per cent. of free caustic alkalis, nor more than 1 per cent. of alkali carbonates." The last clause should be "no more than ¼ per cent. of alkali carbonates."

MASTER MECHANICS' ASSOCIATION.

Reports and Discussions.

We give this week the paper on coupling rods presented at the recent Master Mechanics' Convention by Mr. Howard Fry :

REPORT ON COUPLING-RODS.

Side-rods have very commonly been considered one of the necessary evils in locomotive construction since the time when the earliest engineers discovered that the tractive force of one pair of wheels was not sufficient to haul heavy trains.

Efforts have been made to abolish them altogether, notably in Mr. Webb's compound locomotive, where the cylinders are arranged to work on two different axles. Also in Mr. Strong's driver coupling (illustrated last week), which, by lengthening piston-rod and guide-bars some 8 ft., enables him to place two connecting-rods to each cylinder. And the new Fontaine engine, in which the upper wheel drives two lower ones by friction; but as it is not certain that these efforts will revolutionize ordinary practice, it is important to ascertain what is the best form of side-rod to adopt.

Fifty years of practice have brought into use a great number of designs, and accompanying this report is a series of sketches illustrating the variety of them.

The duty of a side-rod is to transmit a rotary motion from the main driving-axle to other parallel axles; to do this it must be stiff enough to transmit a thrust along its length without buckling. At high speeds it must be sufficiently strong to resist its own momentum; it must also have ends forming good bearing surfaces.

The first of these is amply satisfied by every section in use, as rods have to resist greater strains than this.

As to the second, however, it is curious to notice, in the history of coupling-rods, the groping of engineers after a section of rod, which is at the same time light, cheap and rigid, especially in a vertical direction.

There are many rods still running of a circular section throughout; these are cheap of manufacture, but being of the same rigidity, both vertically and horizontally, they are disproportioned.

This was somewhat improved upon by making rods of elliptical section, but this was too expensive for a finished rod.

Again, a favorite way with some builders of heavy freight engines, is to make their rods thick as well as deep rectangular bars. This is when the engine is not expected to run fast.

Passing from this we find the ordinary proportion for the sections of rods to be about one and one-half multiplied by four inches. (1½ in. × 4 in.) See figs. 1, 2, 3, etc. And at the opposite extreme we have on a great many railroads rods with the middle sections of about 1¼ × 5 in., that is, four times as deep as broad. See figs 6, 14 and 16.

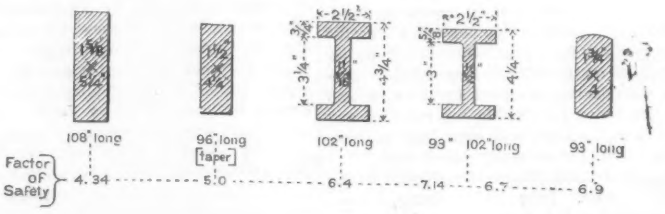
Several attempts have been made of late years to find a lighter section of rod which will at the same time be stiff and cheap.

In Germany and also in this country an I-beam section of rod has been used; see fig. 4. The finished section of this rod will be found to be lighter than the ordinary regular section, the strength being mainly in the top and bottom flanges; see figs. 4, 10, 13, 15 and 18.

This section leads to a rod which is worthy of more consideration than it has hitherto received (see fig. 17), simply two round bars of iron connected at the ends by brass castings. These rods have been used on switch engines and have given satisfaction

In comparing a few of these sections as to their ability to resist their own momentum in a vertical direction, taking account of the length of rod and considering the point in their path where the vertical accelerating force is greatest, and allowing the engine to be running about sixty miles an hour, it will be found, that in the following sections the factors of safety are as indicated below them.

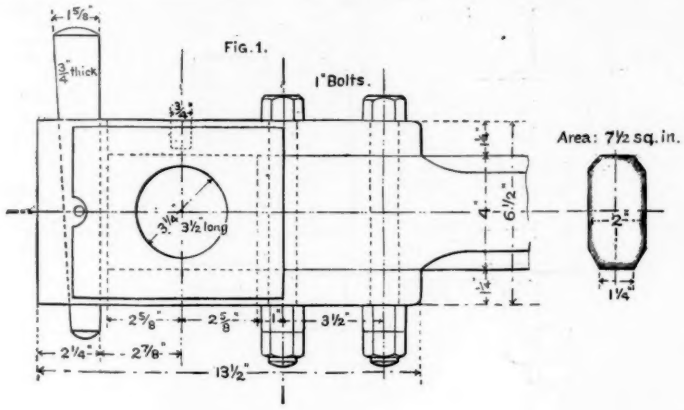
It is interesting to note that for resisting these strains, the heaviest section here shown is the weakest, thus proving that the metal has been wrongfully distributed. Owing to the impossibility of calculating the extraordinary strains which are thrown on side rods in bad weather, in sanding, and when the tires are in bad condition, or by a careless engineer, the factor of safety should be tolerably high.

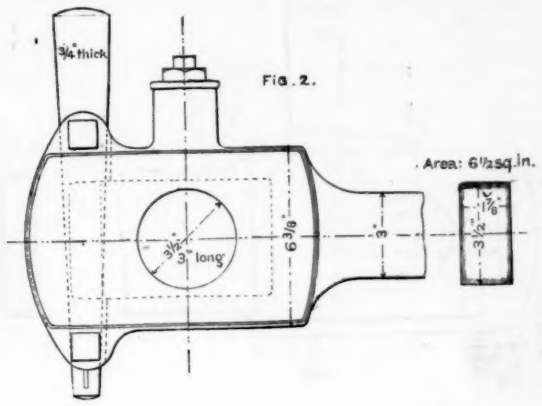


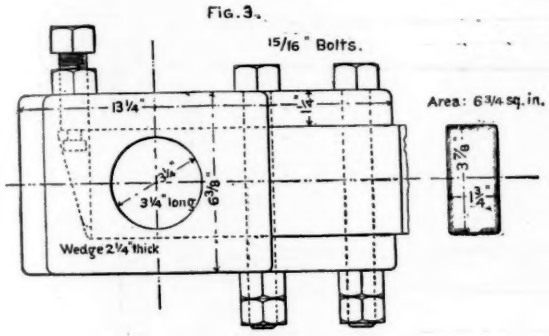
One of the strongest of these sections, shown in figs. 5 and 20, has only 20 in. throw. It is used for express tank and goods engines, and has never failed through its own weakness since its introduction in 1871. It will be noticed that the top and bottom edges are turned in a lathe which some engineers object to on the ground that it thus presents a less section where the greatest strain is, and therefore is more apt to start a crack.

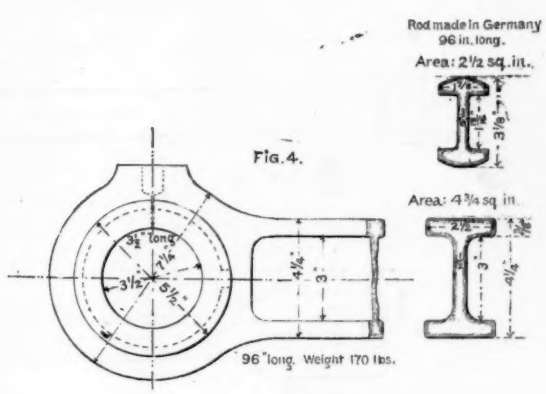
There is a curious divergence of practice with regard to the section of rod throughout its length. Uniformity is the usual rule, but a large number of rods increase in depth toward the centre, in some cases as much as 1 in. The rod shown in fig. 20 thickens in breadth toward the centre ¼ in., this being done by planing the rod while in a bent condition, while one excellent rod, fig. 14, is thinned out in the middle from 1⅛ in. at the ends to 1¼ in., while at the same time its depth is increased from 4¼ in. to 5 in., thus lessening the section from 8 sq. in. in the ends to 6¼ sq. in. in the middle, and at the same time keeping the vertical strength the same throughout. This rod is made of steel, and has therefore been left out of the above comparison of strength of sections.

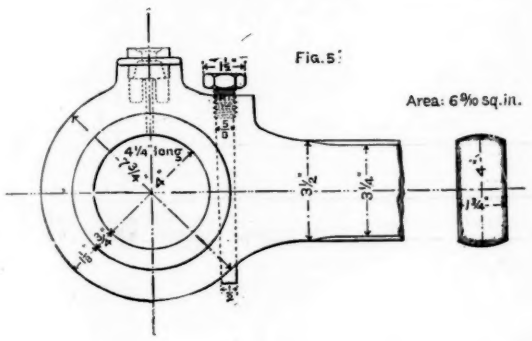
A heavy side rod is such an impediment to an engine's rapid progress that the lighter it can be made the better.

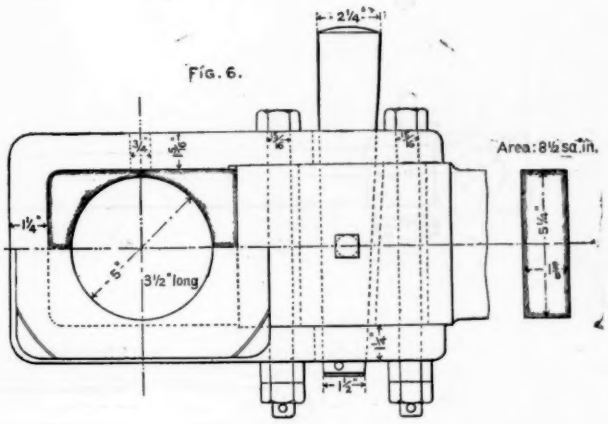


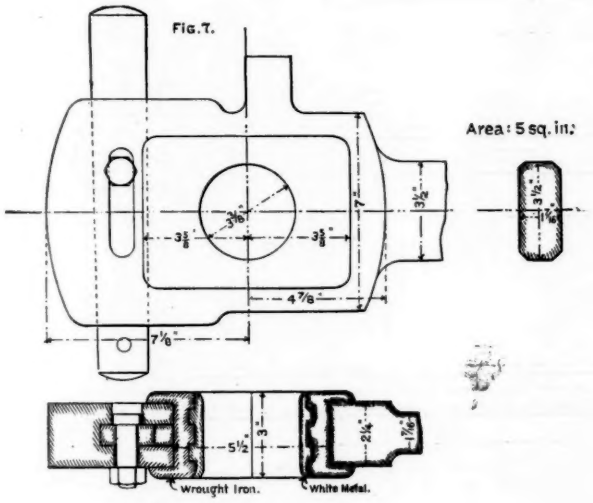


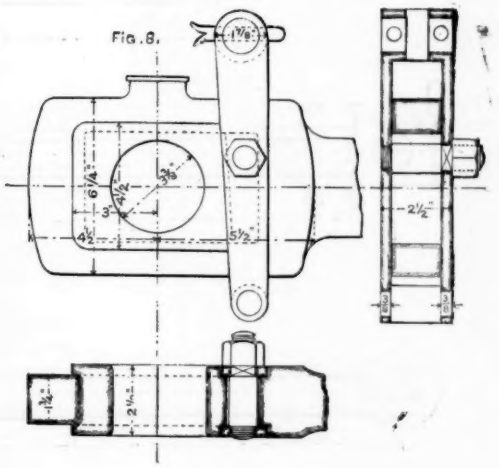


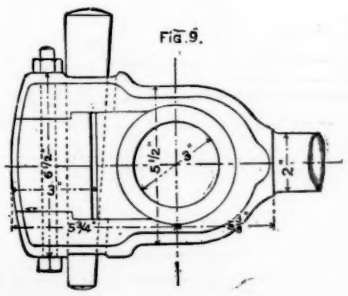


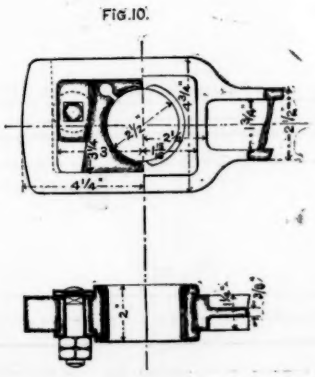


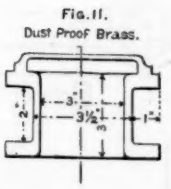






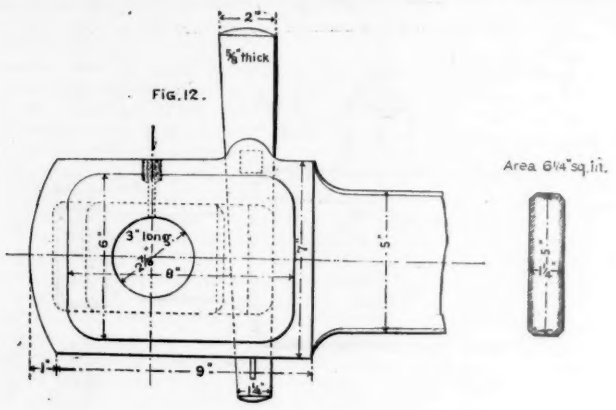






COUPLING-ROD ENDS.

(*Accompanying Report on Coupling-Rods page* 500.



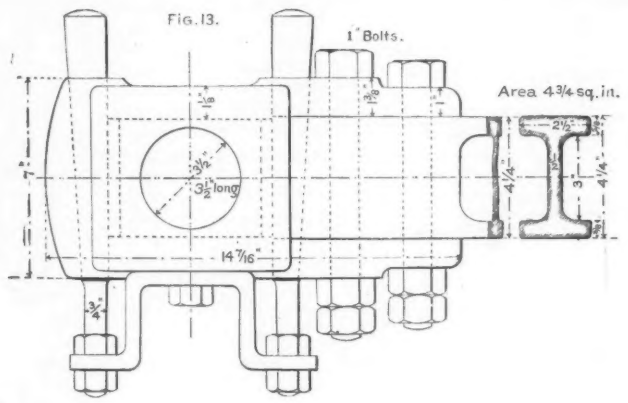


Fig. 14.

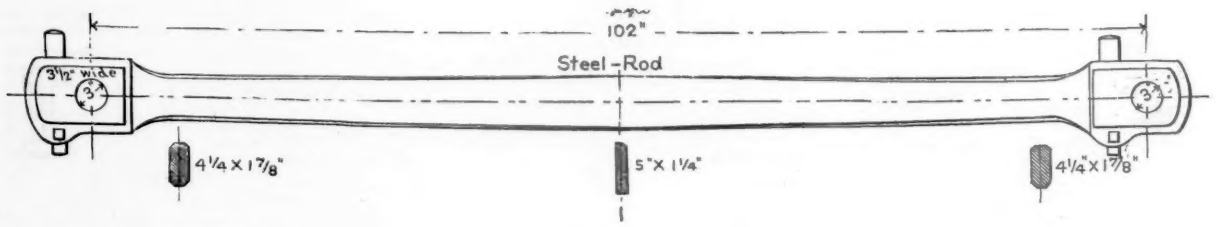


Fig. 15.

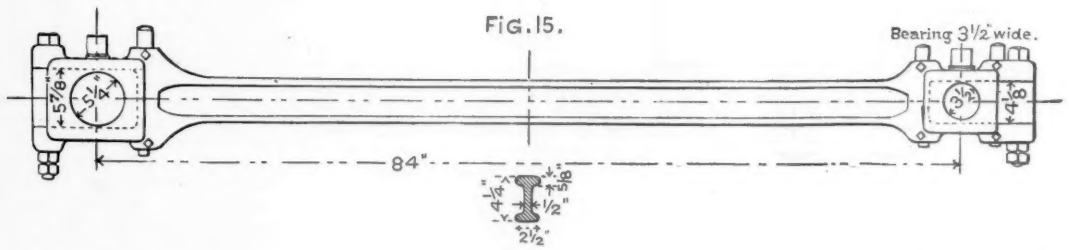


Fig. 16.

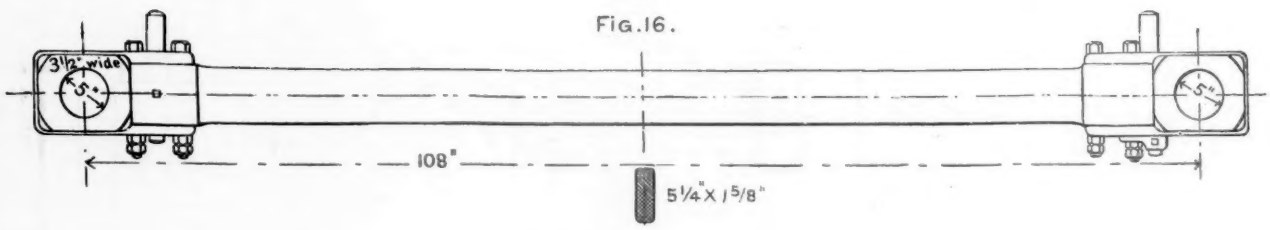


Fig. 17.

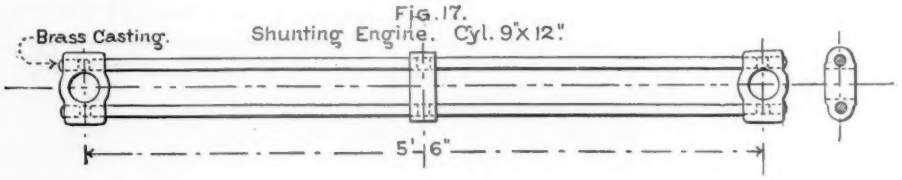


Fig. 18.

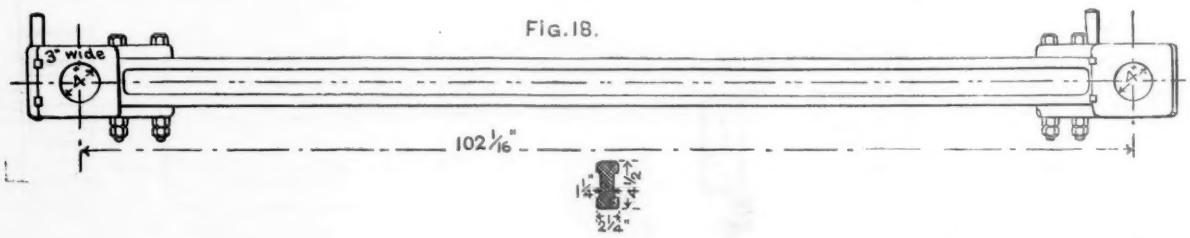


Fig. 19.

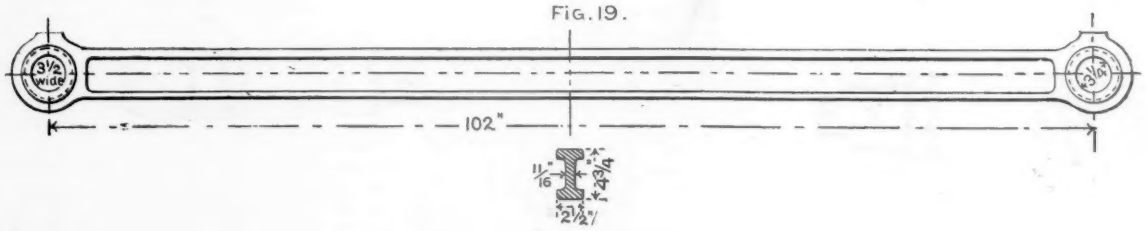


Fig. 20.

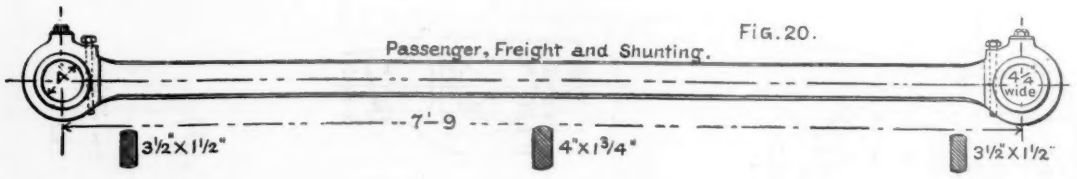
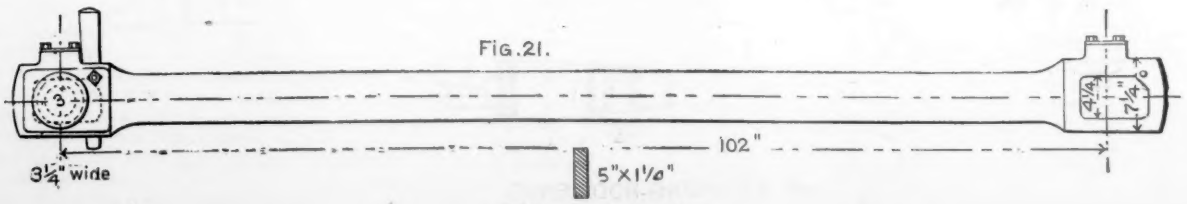


Fig. 21.



COUPLING-RODS.

(*Accompanying Report on Coupling-Rods, page 500.*)

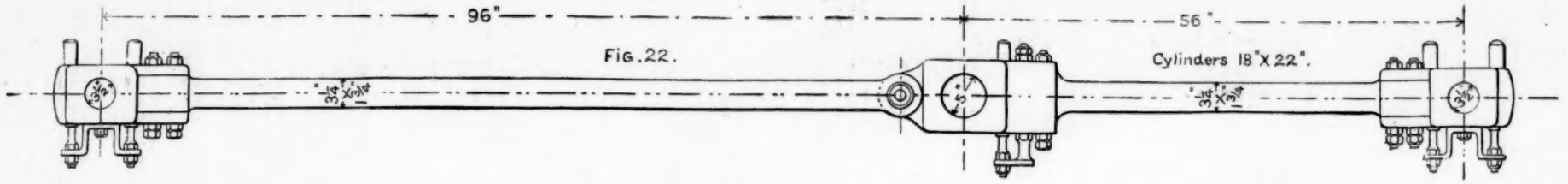


Fig. 22.

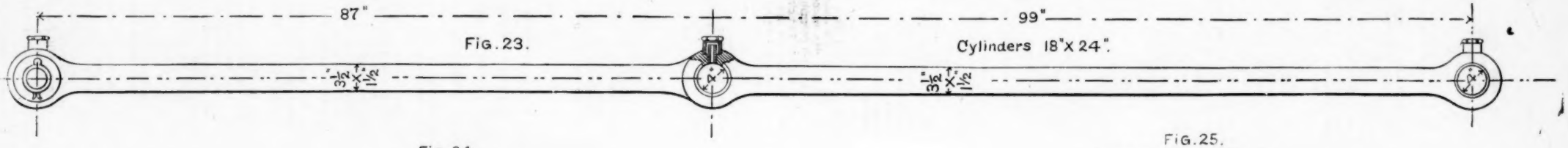


Fig. 23.

Fig. 24.
Knuckle Joint for Fig. 22

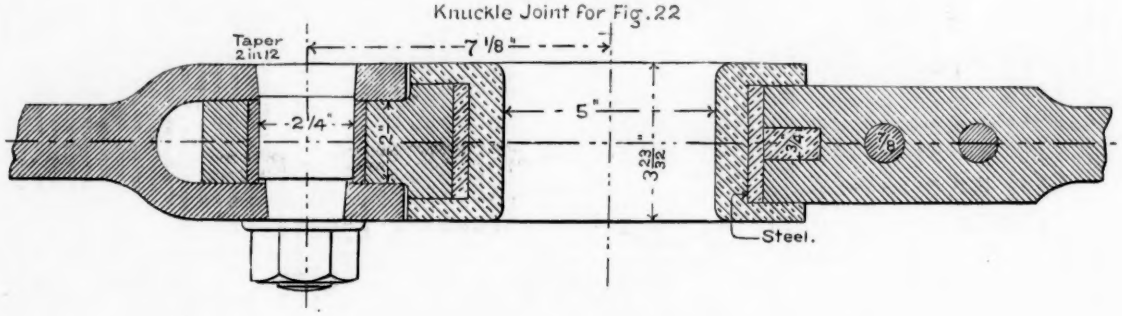
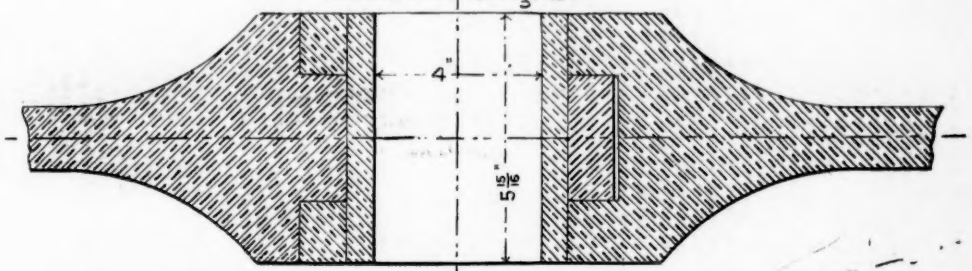


Fig. 25.
Knuckle Joint for Fig. 23.



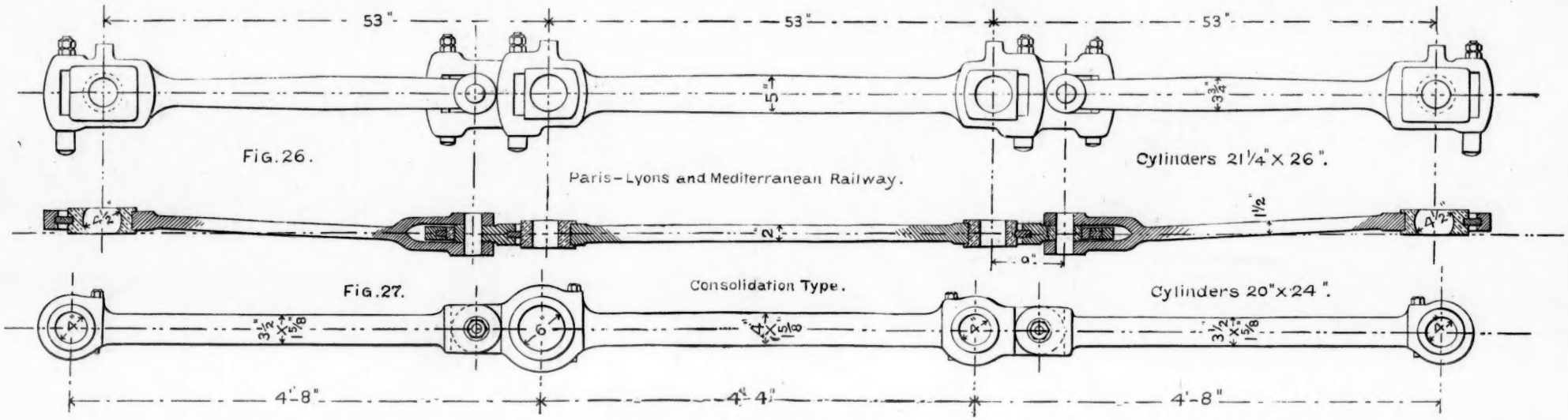


Fig. 26.

Paris-Lyons and Mediterranean Railway.

Cylinders 21¼"X 26".

Fig. 27.

Consolidation Type.

Cylinders 20"X24".

COUPLING-RODS.

(Accompanying Report on Coupling-Rods, page 500.)

A very heavy rod is shown in fig. 18, weighing 314 lbs. Other weights of manufacturers' standard rods are 302 lbs. and 320 lbs.

On the other hand, fig. 4, though but 9 in. shorter, weighs only 170 lbs., and is used for very fast traffic. Between these we have a great variety of weights. The rods of I-beam section are lighter than those of rectangular for equal strength; but a proper proportion of web to flange has not yet been reached in practice. Comparing figs. 4 and 19, both I-beam sections, but whose sectional area respectively is 4¾ and 6 sq. in., and whose weight, being each 102 in. long, is 185 lbs. and 250 lbs. respectively, it appears, as before stated, that the former is stronger than the latter in the proportion of 6.7 to 6.4. The I-beam section adopted in Germany is shown in fig. 4.

With regard to rod ends there are three different systems, illustrated figs 1, 2 and 4; the type represented by fig. 1 is that of a strap holding the brasses, and secured to the rod by two or three bolts, and pierced by a cotter to take up wear. Another method is to forge the rod ends solid, and to form a wearing surface by inserting either ordinary brasses and cotter, or a solid bush made of brass or white metal. The objections to the former are the great mass of metal required to firmly bolt the strap to the rod; and secondly, the weakening of the strap by piercing it with bolts and square cotter holes, and thirdly, the liability of cotters to come loose.

The disadvantages on the other hand put forward against solid ends are, that the wearing surfaces are not adjustable. As there is much to say on each of these methods we will first consider the strap end.

It will be noticed at once that all rods with a strap require a large mass of metal for the strap bolts to pass through, as well as room for a cotter. This has been ingeniously modified in fig. 6, by placing the cotter between the two bolts, which necessitates, however, slotted bolt holes in the rod end as shown. A more direct way of lightening the end is to cut a large hole in the useless mass of metal.

The weakening of straps by cotter and bolt holes has been so often the cause of the failure of rods, that a comparison of some rods now in use may be interesting.

In a common rod, a strap 2½ in wide is weakened by a ¾ in cotter and a ⅞ in. bolt.

In another rod, a strap 2⅛ in. wide is weakened by a ¾ in. cotter and a ⅞ in. bolt.

In another rod, a strap 2½ in. wide is weakened by a ⅞ in. cotter and a ¾ in. bolt.

In fig. 1 rod, a strap 2½ in. wide is weakened by a ¾ in. cotter and a 1 in. bolt.

In fig. 6 rod, a strap 2½ in. wide is weakened by a ¾ in. cotter and a 1⅛ in. bolt.

In fig. 3 rod, a strap 2¼ in wide is weakened by a 1⅛ in bolt.

Several railroads have lately found (probably by experience) the folly of thus putting a weak link in the chain of strains, and have by thickening up the strap with bosses where it is pierced partially, done away with these weak points. As shown in fig. 13, a ¾ in. cotter hole in a strap 2½ in. wide is strengthened by adding in bosses a little more than half the stolen area, and in another case by adding only one fifth of the required additional strength in bosses.

The same objection holds against solid end rods which are pierced by cotter holes to adjust brasses. In fig. 2, the weakening of the ¾ in. cotter in a rod 2¼ inches wide, is exactly compensated by strengthening bosses on top and bottom; but in another case only half the area of the cotter hole has been added. These solid ended rods with brasses and a cotter are more secure and lighter than the strap rods, but on the other hand builders assert that it costs more to fit these rods up than strap rods. Fig. 2 is a typical example of a very large practice. A still further step in the lightening of rod ends was taken by substituting solid bushes for adjustable brasses, and this method, so light, so secure and so exact in its centres, is coming into general use. The rod end, which is generally in one piece with the rod, and of steel, is bored out in a boring mill, the last tool used being a reamer of standard size, and a bush is pressed into this hole by hydraulic or other means, the pressure used being about 35 tons, and is then secured either by a taper pin passing through the joint, or by a key cast on the bush, the latter being riveted over when in its place. These bushes, when made of white metal, are cast in iron chills, and need no machine work until after they are pressed into the rod, when they are bored out under a mill with tools a standard distance apart. With rods of this description it is easy to avoid getting brasses too tight or out of centre, and if one rod fails, the rod on any other engine can be substituted for it.

It is most interesting to note what Mr. Stroudley, of the London, Brighton & South Coast Railway (England) has to say of his ten years' experience with this class of rods. A letter from Mr. Stroudley on the subject to your committee will be found attached to this report. Mr. Stroudley's rod end and section are shown in fig. 5. Other bushed rods are shown in fig. 4; figs. 7 to 10 show practice in Austria and Germany.

The strength of cotters requires consideration as they are a frequent source of failure; the main point is, to make the cotter not only able to stand its strain without breaking, but to make it so strong that under its working strain it shall never be even deflected; as such a deflection causes a pinching and loosening of brasses. The usual breadth of cotters seems to be ¾ in., though we find a ⅝ in. cotter in a very neat strong rod, fig. 12, and a ⅞ in. cotter in another much used rod, but it is unadvisable to increase this on account of weakening the strap; but its depth might, in many cases be increased with advantage, *e. g.*, a light but very common section of cotter is ¾ in. by 1⅝ in. in the middle, while Mr. Stroudley's cotter for a connecting rod, small end, measures 1 in. by 3¼ in. in the middle. In comparing these, though the ordinary working strain on a side rod is only half that on the main rod, the former ought to be as strong if not stronger on account of the sudden shocks to which the main rod is not subjected.

Another minor question on this subject of cotters is, whether it is a real disadvantage to place the cotters at both ends of a rod on the inside as in fig. 16. The objection to the above mentioned arrangement is of course, that any closing of brasses leads to a corresponding lengthening of the centres of the brasses, unless the back of the outside brass be carefully lined up. The disadvantage on the other hand of placing the cotter on the outside of one end is, a heavier end and less uniformity.

A modification of the strap and cotter, that of a screw adjustable wedge has been neatly applied to side rods in fig. 3. In the place of the ordinary cotter hole, only the top half of the strap is pierced by a 1-in. set screw with lock nut, which raises or lowers the wedge, the latter having a taper of 1 in 4 at the back of the brass. It would be interesting to know if these wedges with so steep a taper have lasted well or not.

And this brings us to the subject of the right taper for cotters. The variety in use may be gathered from a dozen examples. Of cotters secured by a set screw

3 have a taper of about ⅝ in. to 1 foot.
4 " " " ¾ in. "
2 " " " 1 in. "

We find cotters secured by a screwed end with tapers of ⅝ in. and ¾ in. to one foot. Mr. Stroudley's cotter has only ¼ in. taper to one foot. The most recent heavy freight engine on the London & Northwestern Railway has only two cotters in its whole structure, these being where the piston rods are connected to the cross heads, which shows the strong feeling against the use of cotters on this railroad.

A very neat German cotter is shown in fig. 8, where the cotter is in two pieces placed one on each side of the rod, and pressing against the flanges of the brasses; a bolt through cotters and rod holds them tight. The greatest advantage for this end seems to be that, instead of piercing the rod with a slotted hole, the cotter bearings are made by simply planing a step on each side of the rod.

Fig. 10 shows an ingenious method of adjusting the brasses by a wedge without piercing the solid end by any hole. The drawing explains itself and it may be left to each individual to judge of its practical merits.

Fig. 9 also shows one variety of a style very common in German designs, that of dove-tailing the block into a forked end and securing it there by a light bolt through fork and block, a cotter being used as usual to close the brasses. With good workmanship this must form a very fair end, and we are sorry that we lack information as to the working of these ingenious devices.

Some engineers in Europe have fitted their brasses into ball joints, in order to give the wheels more lateral freedom, but the extra expense and double wearing surface can scarcely compensate for the very small advantage claimed. The rods of a very heavy eight-wheeled coupled engine on the Paris, Lyons & Mediterranean Railway, shown in fig. 26, illustrates these ball joints. All the wheels are flanged, and in order to get the engine to traverse curves of 580 ft. radius, 1 in. side play in each direction is allowed in the leading and trailing axle boxes, and spherical or ball bearings in the side rods, were necessary to allow this. There were 90 of these engines in successful use in 1880 with cylinders 21½ in. diameter, 26 in. stroke, climbing grades of 1 in 33, and were first adopted in 1869.

Figs. 22 to 27 will illustrate four systems of freight engine side rods. The first rod is one of the six-wheel coupled-type in ordinary practice cylinders, 18 in. by 22 in.; the second belongs to an engine with cylinders 18 in. by 24 in., and larger wheel. The details of the knuckle joint (shown in fig. 25) show the greater simplicity of the latter method, the phosphor-bronze bush in the solid rod joint being secured to the central portion by means of the oil cup which is screwed into it from above. Fig. 26 is the method of spherical bearings above mentioned, not much in use; and fig. 27 a recent adaptation of solid bushed ends to a consolidation engine.

It may be mentioned here that there is a tendency among some engineers to lessen the stroke of the side rod, which however, can of course, only be done on inside cylinder engines. As one instance of this, a 7 in. diameter four-wheel coupled passenger engine recently designed with 19 in. by 26 in. cylinders, has a coupling rod throw of only 18 in.

The breadth of bearing for side rods is an important item in their length of service, and it is unfortunate that about 3½ in. seems the greatest breadth obtainable for outside cylinder engines. Mr. Stroudley's engines, fig 5, and the freight engine, fig 23, have both inside cylinders and very broad bearings, 4¼ in. and 6¼ in. respectively.

We have thought best only to illustrate typical examples of the many drawings that have kindly been sent to us, though all information is valuable in writing a report of this kind.

MATERIAL.

Iron is still generally used for side rods, although steel is rapidly coming into favor; but we have no data to show that the weight of rod has been correspondingly reduced. Where steel has been adopted a better section has generally also been used, which enables the rod to be lightened.

Of the various mixtures of bearing metal, each have their advocates, but phosphor bronze has been so successful that most bushes for solid end rods and many sectional brasses are now made of it.

White metal bushes are very cheap, owing to the small amount of machine work on them, but they sometimes work loose, which is probably due to the continued knocking, which must more or less alter their shape. A good mixture for such bushes is, tin 16, antimony 2, copper 1.

The Southern Railway of Austria (see fig. 7) make their bearings wrought iron lined with white metal, but this seems one of those details of continental work where expense is not an item of consideration.

Steel bushes have been successfully used for wrist pin joints where there is not much motion.

COST.

It is difficult to make a fair comparison between the cost of different styles of rods, but the following figures will help in forming an opinion:

	Material and smith work.	Machine labor.	Total.
Cost of making one set of strap rods	$72	$50	$122
" " " one set of Fig. 1	48	33	81
" " " average of strap rods	60	41.50	101.50
" " " one set solid end steel, as per Fig. 14	81.50	63.50	145
Cost of making bushed and grooved rod, Fig. 19	72	50	122
Cost of making bushed and grooved rod, Fig. 4	...	25.50	...

From these figures, which have been accurately calculated from different sources, we may infer that the cheapest rod is still the old strap rod, partly owing, no doubt, to the fact that what has always been made is easiest made. That the next cheapest is the solid bushed end, although with fluted sides, which is, as we have seen, the best rod where standard lengths can be maintained, and which bids fair, with a little practice, to be as cheap a rod to manufacture as the common strap ended one; and lastly, that the solid end with brasses and cotter is the most expensive.

FINISH.

A great deal might be said on the time spent on finishing off rods. An engine is supposed, by many people, to be handsome when its parts are polished and its colors brilliant. And to accomplish this much valuable time has been spent and acres of emery cloth used. It is now more easily done by means of emery wheels, and some rods are allowed to go out straight from the grindstone and be painted. One of the largest railroads in England does not permit the rods to be touched after they come from the planer, but consider that a rod looks best when it shows least sign of laborious work. For a similar reason much of the bevelling of edges has been discontinued, especially in busy times, when it is necessary to get out work quickly.

In conclusion, we may ask, are alterations and improvements to be made by the suggestions of reason, or are we to go on in the old way of keeping to old methods, and only modifying a piece when numerous failures have proved the necessity?

The latter method will, no doubt, in time eliminate the evils of weakness, but it would never show up the superfluously strong places which make an engine clumsy. On the other hand, there are strains on a side rod, which it is almost impossible to calculate and which conditions of weather control.

Thus, there are many points in locomotive engines, even in the small subject of side rods, which will have to be modified, until some day we may have a locomotive whose parts are so admirably proportioned, that no one shall be stronger or weaker than another, when every part will be able, like every perfect organism, to perform its own duty with perfect ease and safety.

EXTRACT FROM MR. STROUDLEY'S LETTER.

I inclose you tracings of my standard connecting and coupling rods. Each rod is forged out of a solid piece. We have 238 engines fitted with them, 50 are of the small size, the remainder being uniform with the drawings, but all alike in design. All of the connecting rods have been fitted up by one man who receives them from the machines and puts in the brasses, cotters bolts, &c., and finishes the rod entirely. The same fitter also puts up the rods under the engine and keeps the whole of them in order, no other man being employed for rod repairs. The bolt which holds the small end strap together prevents the wear by making the strap and rod quite solid; and the cotter has sufficient strength to prevent its deflecting, there is therefore no wear on these parts which usually go to pieces quickly when fastened with the old-fashioned gibs. The large end is bored out and the brasses are all turned to gauge so that at out stations the driver can remove a set of brasses and put in spare ones without the use of a file: the worn brasses are sent to headquarters and are filled up with white metal and re-bored to be used for any other engine.

In the case of side rods I have a great number that have been running since 1871, 72-73 to the present time without renewal to the bushes or pins. In no case has such renewal been required except where the driver has neglected the oiling. One of the large goods engines built in these works in 1871, was in the shops when the Iron & Steel Institute visited Brighton in 1881, the side rods were as close a fit after running ten years as when new, less than 1-16 in. play on the pins, and they were of course sent out without any further work on them. Many of the engineers visiting the works were much struck by this durability which is no doubt largely due to the use of case-hardened pins. We have these rods on express, tank and goods engines, the length being the same in each case. The side rods are thicker in the centre than at the ends. We plane them in an ordinary planing machine bending down the rod at one-half the required increase of thickness and after one side is planed the rod is turned over, bent down the reverse way, and when it is finished it is symmetrical and properly curved. I may here mention that not one of these rods has broken. I placed the outside crank on the same side of the axle as the inside crank The outside throw is 10 in. and the inside 12 in. and 13 in., according to the size of engine. The rod ends are case-hardened, and the bushes forced in and held by a pin, as shown on drawing; these bushes do not get loose.

In designing locomotive details I consider what is required to be done in our present means of manufacture, instead of following old fashioned designs which were good enough in their day, when tools and materials were very different from what they are at present. I shall feel extremely obliged if you will give me a copy of your report, and some similar details of the cost of manufacture and durability of American designs.

LONDON, BRIGHTON & SOUTH COAST RAILWAY.

Details of Construction of a Connecting Rod.

	In the rough.	Finished.
Total weight of wrought iron	627 lbs.	347¾ lbs.
" " brass work	79½ "	53¾ "
" " steel	¾ "	½ "
Total weight of rod	707¼ lbs.	402 lbs.
Smith's time forging		15¼ hours.
Turning		56¾ "
Drilling		27¼ "
Slotting		19¾ "
Planing		36 "
Fitting		70 "
Moulding		1 "
Total		226 hours.

Summary of Cost of one Rod.

Smith's	$17.64
Machines	25.30
Moulders	1.12
Fitters	16.80
Marking off	78
Total	$61.64

DISCUSSION.

Mr. FLYNN: I have found that the breaking of parallel rods on my road has generally been where the rods are somewhat old in service, say four or five years; that then they have become dangerous to run on fast trains. I still cling to the old strap rod, and with all due respect to Mr. Fry's friend who wrote the letter stating that in ten years' service there was only about one-sixteenth lost motion, there certainly must be less service or less hard work on the English engine than there is on ours, for we all know that none of our engines, even after a service of three years, would show as little wear as that. In fact, the pins themselves in a service of three or four years would be worn that much, perhaps more. My impression is that the breaking of the rods is due to their being in use very long. My impression is if the parallel rods were closely watched and not allowed to run longer than a specified time you would not have so many breaks. I do not believe in a heavy rod. I believe the lighter the rod the better, if it is properly proportioned. I think that where rods are broken after six months service, there must have been some serious defect in the material they were made of. I do not myself believe in steel either for crank pins or rods or driving axles. I believe in a good quality of wrought iron. I have had steel axles break in seven years, and I never had a wrought-iron axle break under a service of 13 years. I believe, as I said before, that a wrought-iron parallel rod properly watched, properly examined and not allowed to run too long is just about as good a rod as you can get.

The PRESIDENT.—I believe that the breaking of a great many rods is due to the fact that the rods are tampered with. In other words, they are tinkered by the engineers. That is one strong argument in my mind in favor of the plain bushed rod. Make your rods right, get the lengths exact, bore your bush out so that it will slip on freely. No matter if there is a thirty-second of an inch play, slip it on, and that is the end of it. I have been using for several years a solid end rod, with no bolts but a peg. It is so difficult to take the boxes down and fill them and get them back that the engineers let them alone. It is too much labor for them. I do not see that it is much labor to take them off, but they present a good deal of surface to be filed, and they are put up so that they will keep box to box solid, and be perfectly free. I have run those rods over two years without having a set screw started in them.

Mr. BRIGGS: There seems to be something very mysterious connected with parallel rods, and inasmuch as our experience in regard to them is so diverse, I think there is

something wrong somewhere. There are five engines on the road I represent, 16 × 22 cylinders and 5 ft. 8 in. wheels. When they were built, I put old rods on them with new straps. Those rods are twenty-five years old now. Our passenger trains make thirty miles an hour. They pull eight cars. Those engines will average 2,800 miles a month; and I have not had the first rod break in all my railroad experience. When I overhaul an engine, the first thing I am careful about is to see that the crank pins are perfectly true, and if they are the least bit eccentric and I think it is going to take much time to true them up, I take them out and put in new ones. I never overhaul an engine without being certain as to whether the pins are perfectly true. I have had those rods run eighteen months, without the brasses being filed on them. We have made fast runs and tested them in every way in which a rod can be tested, and the first rod has to break yet. We are apt to look too high for an explanation of the trouble. Now, I attribute my good fortune in the first place to the fact that my rods are not overtaxed. I do not believe a rod will live as long on a small wheel as it will on a large wheel with the same speed.

Mr. CLARK: The only trouble I have had with connecting rods has been with the old-fashioned ones; and I have also had some trouble with the strap ends. I have now adopted the solid end with a single cotter. I find them to give satisfaction. I do not allow any of the drivers to meddle with those at all. Since we have done away with the old-fashioned rod and have adopted a well proportioned rod, we have had no trouble with breakages. I believe in wrought-iron pins. I do not believe in steel. I have not the same reliance on steel as I have on iron.

Mr. WILDER: I think much of the trouble is due less to the way we do our work than to the condition of our track, etc., and the success our English friends have had in running rods so long, is due to a great extent, I think, to the difference of the track, which is made the prime thing in England.

Mr. HOLLISTER: In the case of one engine just out of the shop, I found the side rods were running hot. I measured the driving wheels, and found one wheel nearly an eighth of inch larger than the other three. I had the wheels taken out and turned off, and we had no more trouble with hot rods.

Mr. LYNE: I believe the breaking of connecting rods is not so much due to the construction of the rods as to the small details. For instance, I have known parallel rods to break on a locomotive, owing, I believe, to the fact that when the driving wheels were placed in the lathe for turning off, the centres were drawn in order to take as little off the journal as possible; and it will be readily seen that drawing the centre throws the pins off the quarter.

Mr. ROBINSON: In 1862 we broke a steel rod about every three days. In the course of a couple of years from that we had our line relaid with steel rails, and instead of breaking from six to ten steel rods a month, we did not break that number in two years. So I think Mr. Wilder struck the key-note when he said the track had most to do with it. I think that if proper mechanical proportions are observed in the engine, and the crank pins and all the parts are true, and you have a good track, it does not matter much about your side rods, except that, as engineers, you should try to get them as light as possible. We found the lighter we got our side rods the better they were.

Revision of the Constitution of the Master Car-Builders' Association.

The following circular of the Committee on the Revision of the Constitution of this Association has just been issued:

DEAR SIR: At the annual convention of the Master Car-Builders' Association held in New York in June, 1881, the following amendment to its constitution was proposed:

ARTICLE III.

SEC. 1. There shall be three classes of members, active, representative and associate members.

SEC. 2. Any person holding the position of Superintendent of the Car Department, Master Car-Builder, or Foreman of a railroad car shop, or one representative from each car manufacturing company, may become an active member by signing the constitution, or authorizing the President or Secretary to sign for him, and paying his dues for one year.

SEC. 3. Any person having a practical knowledge of car construction may become a representative member, by receiving a *written* appointment from the President, General Manager or General Superintendent of any railroad company, to represent its interests in the Association, provided that no representative member shall represent more than one railroad company. Such members shall have all the privileges of active members, and in addition thereto, on all measures pertaining to the adoption of standards for car construction, or the expenditure of money, they shall each have one more vote for each thousand cars the company which they represent owns. [No railroad company shall have more than one representative member.][*] In the enumeration of four, six or twelve-wheeled cars, four axles to count as one car. The dues of representative members shall be in proportion to the whole number of votes they are entitled to cast. Their membership shall cease if their appointment is revoked by any officer authorized to make it, or when such a member leaves the employ of the company by which he was appointed.

This, after a lengthy discussion, was referred to a committee, which was instructed to report to the Association at its annual convention to be held in 1882. Such a report was made at the meeting in Philadelphia, in June last, and a copy of it, with a statement of the subsequent action thereon, is inclosed herewith. From the latter it will be seen that the proposed amendment with a slight modification, and also the following resolution, were adopted:

"*Resolved*, That the Committee on Reorganization be instructed to notify presidents, managers and general superintendents of the railroads of the country of the adoption of the new amendments to the constitution, and invite them to send representative members to an adjourned meeting of this Association, to be held on the second Tuesday of October, at Niagara. That the Committee be further instructed to report at that meeting such amendments to the constitution of the Association as, on investigation, they may think are desirable."

The object of the circular is:

First, To give notice of the action of the Association on the above amendments of its constitution.

Second, To invite your company to send a representative member to the adjourned meeting, to be held at Niagara in October.

Third, To request you to make to this Committee any suggestions in relation to the revision of the constitution which in your opinion are required, or would promote the usefulness of the Association in the future.

A copy of the constitution as now amended will be found on the last pages of the pamphlet inclosed. As the revision of the constitution has been intrusted to this Committee, and as it is a matter of great importance to the future usefulness of the Master Car-Builders' Association, the Committee will be glad to receive from you any recommendations that will aid them in perfecting or improving that instrument.

LEANDER GAREY,
W. T. HILDRUP,
C. A. SMITH,
M. N. FORNEY, } Committee.

Replies to the above should be addressed to M. N. Forney, Secretary to the Committee, No. 73 Broadway, New York.

[*] The words in brackets were proposed as an additional amendment, but no action was taken on them.

Discrimination in Privileges—A Railroad May Not Give One Stock Yard Exclusive Rights.

The following is the full text of the decision of Judge Baxter, of the United States Circuit Court, granting a temporary injunction against the Cincinnati, Indianapolis, St. Louis & Chicago Railroad Company and the United Railroad Stock Yard Company, of Cincinnati, compelling the defendants to receive and deliver stock at the yards of the complainant:

The facts in this case are few and simple. After averring that he is a citizen of Kentucky, and that the United Railroads Stock-Yard Company is an Ohio corporation, and that the defendant, the Cincinnati, Indianapolis, St. Louis & Chicago Railroad Company is a corporation organized under the laws of Ohio, Indiana and Illinois, the complainant charges that he is lessee of certain stock-yards referred to in his bill, situated on the line of the Cincinnati & Baltimore Railroad Company's road, in Hamilton County, Ohio; that his yards are connected with said railroad by a suitable switch; that he is there engaged in the business of receiving, feeding, housing and shipping live stock; that the Cincinnati, Indianapolis, St. Louis & Chicago Railroad Company's road connects with the Cincinnati & Baltimore Company's road two miles south of complainant's yards, and that the said defendant is, by contract, in the use of that portion of said Cincinnati & Baltimore Railroad Company's road lying between said point of junction and complainant's yards, over which it is carrying on the business of a common carrier of live stock, making regular deliveries to and receiving stock from its co-defendant, loaded in cars standing on the track. He furthermore alleges such receipt and delivery of stock in cars on the track is necessary to the successful prosecution of his business, but that in disregard of the obligations imposed on it by law, said defendant has entered into a contract with the United Railroads Stock-Yard Company, its co-defendant, whereby it has covenanted to make said United Railroads Stock-Yard Company's yards its depot for the receipt and delivery of all live stock carried by it to and from Cincinnati, and obliged itself, in so far as it could lawfully do so, to deliver all live stock carried by it to or received for shipment from Cincinnati, to and from its co-defendant; and that relying on said contract as a valid obligation and a sufficient justification of its action in the premises, said defendant unlawfully and wrongfully refuses to receive stock from or deliver stock to complainant, except through the United Railroads Stock-Yard Company's yards, whose yards, it appears, adjoins the complainant's yards.

Complainant thereupon prays for an injunction to restrain id defendant from so discriminating against it, and to compel it to receive and make deliveries of stock to him in the same manner and on as favorable terms as it receives from and delivers to complainant's said competitor.

The application for a preliminary injunction came on for argument before me at Knoxville on the 12th of July, 1882, when the Cincinnati, Indianapolis, St. Louis & Chicago Railroad Company filed its plea denying the jurisdiction of this Court, because, as the plea avers, it is not a corporation of Ohio, as is alleged, but that it is a corporation under and in virtue of the laws of the state of Indiana alone. It does not, by its plea, deny service of process or raise any question in regard to its regularity or legal sufficiency. But the counsel insisted in argument that as defendant was an Indiana corporation, and a citizen of that state, it could not be lawfully served with process in this jurisdiction, and that it was, therefore, not legitimately before the Court.

We need not stop to demonstrate that the question argued by counsel is broader than the plea, inasmuch as if such question was raised by the plea I would not hesitate to overrule it.

We concede that corporations—mere legal entities—can only legally exist within the territorial limits of the sovereignty creating them; that they must dwell in the places of their creation, and can not migrate to other sovereignties. But it is as equally well settled that they can do business, if not inhibited by law from so doing, in foreign states and countries, and that they may be there sued in relation to the same. 1 Vol. Redfield on Railways, page 63, sec. 4.

Hence, if it were conceded that the defendant is an Indiana corporation, as alleged in its plea, it appears that it owns and operates a road in Ohio, where its President resides and its principal office is located, and that it is there, by legislative permission, engaged in the business of a railroad carrier. If so, it is liable to be served with process in this jurisdiction. "This Court," says Judge Force, of the Superior Court of Cincinnati, in a case recently decided by him, "has, by statute, jurisdiction of an action against a foreign corporation when such corporation can be found within the city. A corporation can be found where it can be served with a process according to law. A foreign corporation can be served with a summons according to law (in Ohio) by service upon a managing agent." And about the same time Mr Justice Matthews said, in a similar case, pending in this Court, that where foreign corporations establish an agency in a state whose laws provide (as in this) that "they may be summoned by process served upon an agent, they are 'found' within the district in which such agent is doing business, within the meaning of the act of Congress of March 3, 1875, and may be served in the same manner in suits brought in the United States Court." (Mohr & Mohr Distilling Company vs. Insurance Company, 12th *Federal Reporter*, 474, and authorities cited in the note thereto.) These adjudications are conclusive of the question attempted to be raised in this case. The defendant is duly before the Court, and it only remains to be determined how far, if at all, the complainant is entitled to relief upon the facts herein stated.

Railroads are potential agencies and constitute a very considerable part of the national wealth, and deserve to be fully protected in all their chartered rights. But while they are essential to the continued prosperity and further development of the varied resources of this great country, they are susceptible, when manipulated in the interests of selfish schemes, of being perverted to the most unjust and oppressive uses. They necessarily monopolize all inland carrying business, and, if unrestrained, can, by unjust discriminations, favor some individuals and communities to the very serious detriment of others. Hence, the frequent efforts made to control them in the interests of individuals and communities. By establishing or abandoning a depot they can depreciate or enhance the value of private property, and by extending or withholding facilities increase the profits or inflict losses on all persons engaged in commercial or other pursuits dependent on their favor. An advance of two cents per bushel on the grain annually carried from the grain producing West to the Eastern cities, with a corresponding increase upon all other classes of freight, would impose a tax upon the industry of the country exceeding in amount the annual levies made by Congress for the support of the national government. If permitted, they can so regulate their freight charges as to exact from each locality dependent on them the utmost farthing which the circumstances of each particular case and the absence of wholesome competition enable them to impose. For instance, where competition is sharp, they can carry freight and passengers over their entire lines for less than they charge for shorter intermediate distances, simply because in the one case they are controlled by competition, and in the other, in the absence of such competition, they have it in their power to extort the utmost farthing which such intermediate business is capable of bearing. Those who have them in charge can organize side or collateral business enterprises, and so manipulate their roads as to seriously cripple their competitors, and add to their own profits. These are but some of the probabilities incident to railroad management. Nevertheless, with all their capacity for injustice, they can not be dispensed with. But are their duties and obligations to individuals and to the public to be measured by the judgment of the interested parties, using them to further their own selfish schemes, or by the courts? And if by the latter, to what extent may the courts go in supervising their actions and in restraining abuses? These are grave questions which we will now endeavor to answer.

The great and fundamental principle on which we rest the conclusions hereinafter stated is the conceded fact that all railroad corporations are *quasi* public corporations dedicated to the public use. It is upon this idea that they have been invested with the power of eminent domain, the authority to take and appropriate private property to their use by paying a just compensation therefor. They have been created for the purpose of exercising the functions and performing the duties of common carriers. Their duties and liabilities are defined by law. In accepting their charters, they necessarily accept them with all the duties and liabilities annexed; that is to say, they undertake to construct the roads contemplated by their several charters, to keep in good condition, equip them with suitable rolling stock and safe machinery, employ skilled and trustworthy laborers, promise suitable means of access to and egress from their trains; erect depots and designate stopping places, wherever the public necessities require them; supply, to the extent of their resources, necessary and adequate facilities for the transaction of all the business offered: deal fairly and impartially with their patrons; keep pace with improvements in railroad machinery, and adapt their service to the varying necessities and improved methods of doing business.

The granting and acceptance of such charter creates a *quasi* public trust, and clothes the public with an interest in the use of railroads, which can be controlled by the public to the extent of the interest granted therein (Munn vs Illinois, 4th Otto, 126 to 134 inclusive). But how and by whom can this *quasi* public trust be administered?

The defendant insists that relief can not be given by this Court. The contention is that all persons injured in their property or persons by the wrongful action or non-action of a railroad corporation, can have adequate relief in a court of law by a suit to recover damages for the wrong done, or by mandamus, to compel a fulfilment of its corporate obligations. These remedies undoubtedly exist; but is there no other or better remedy for the redress of such wrongs? Suppose defendant should entirely suspend its operations, and refuse to run trains upon its road, it would be in default, and everybody injured thereby could sue and recover the specific damages sustained. But is the public without redress, and are the courts without power to interfere at the instance of one or more individuals, and protect the public as well as individuals from the threatened deprivation of the benefits and advantages intended to be provided by the building of the road? Or suppose the defendant should ignore the claims of some populous neighborhood, whose business justified and whose necessities required depot accommodations for the receipt and discharge of passengers and freight, and in this way force the people of such locality to transact their business through some depot eight or ten miles distant—is there no redress except through a multiplicity of suits to be prosecuted at law by each injured party, or such relief as could be obtained through the tardy and inadequate process of *mandamus*? These remedies exist. But they are not the only means of relief. The defendant, by accepting its charter, assumed certain obligations in favor of the public in the nature of a *quasi* public trust, and the duty of enforcing the execution of this trust, in the absence of some statute providing another and different remedy, devolves upon courts of equity. All matters of confidence and trust are within their peculiar cognizance. They may restrain or command, remove a trustee and substitute another in his stead, or execute the trusts themselves, as the exigencies of each particular case may require. Their jurisdiction has been well established and defined. No court, I presume, exercising equity powers would hesitate, upon proper application, to command the defendant in the contingencies supposed to provide a depot or operate its road, for the obvious reason that the road was authorized and built for and dedicated to the public, and the public has a right to use it; and if the officers representing the corporation were to refuse to execute the trusts reposed in them, in the particulars mentioned, or in any other respect, it would be the imperative duty of the court of equity, on due application, to interfere, and by an exercise of their extraordinary powers, compel a faithful observance and discharge of all of its obligations. If these courts can lawfully do this, their supervising authority over such corporations to the extent of the public interest in them is vindicated—that is, they can compel them to keep their roads, rolling stock and machinery in good condition, force them to establish and maintain depots at suitable points where the business and public necessities require them; provide suitable means of access to and egress from their trains; forbid injurious discriminations, and to the extent of their means supply all the facilities for the safe transmission of persons and property contemplated by their charter. Their authority to do this was affirmed and applied in the recent litigation between the express and the railroad companies, in which the railroad companies admitted an obligation to receive, carry and deliver express freight, but contended that they were only bound to do so when the freight to be carried was delivered into their custody to be carried in the usual way at their risk and on their freight trains, to be delivered by them to the consignees. But every court before which the question was argued held otherwise.

In the last of these cases recently decided by Mr. Justice Miller and Judge McCrary, at St. Louis, Mo., the Court ordered the railroad company, upon a motion for a preliminary injunction, to furnish the express company with suitable freight cars, to be attached to its passenger trains, for the transportation of its freight in care of its own messengers, and at the rates fixed by the Court, thus recognizing in the fullest possible manner the authority of the Court to supervise and control the action of the railroad company in the public interest.

Now, if it was competent for the Court to thus interfere and control the railroad company in a matter of detail in its business affairs, why may I not if the facts of this case justify relief, compel the defendant railroad company to make deliveries of live stock consigned to complainant on the same

terms and in the same manner as under like conditions deliveries are made by it to its co-defendant.

The business of receiving, feeding, dealing in and forwarding live stock is legitimate and necessary. To do so on a scale commensurate with the trade of Cincinnati in that line necessitates large expenditures in the erection of buildings and the equipment of suitable yards. Now, being both legitimate and useful, everybody engaging in it is entitled to equal facilities in the use of railroads, upon which they are largely dependent for success, for it is obvious if the railroads centering at Cincinnati, or the officials who control them, are permitted to combine and establish a stock-yards as a private enterprise, and by contract make it the depot of the roads for the receipt and delivery of all the stock brought to or carried through the city, and withhold like accommodations from their competitors, they can suppress competition, and establish and maintain a monopoly in that particular department of trade, and subject the public to the payment of undue and unreasonable exactions for the services rendered.

I am very clear that no such right exists. Where a railroad company assumes to receive, take care of, water, feed and forward stock as a part of its undertaking to transport them, as it may lawfully do, they are at liberty to select such agencies as they may choose to employ for the purpose, and the exercise of the right is no wrong to any one else. But that is not the question here. The complainant does not complain of defendant transacting its business through its own agent. Its complaint is that the defendant refuses to deliver stock consigned to his yard to him, except through the yards of the co-defendant, and it is against this unauthorized and injurious discrimination that he seeks relief. The two yards are contiguous. They are both connected with the Cincinnati & Baltimore Railroad Company's road (over which the defendant is running its trains) by suitable switches. The railroad defendant can receive stock from and deliver stock to the one as easy as to the other, but refuses to do so. The discrimination is contrary to a sound public policy and injurious to the complainant. It gives to the United Railroads Stock-Yards Company important advantages in the receipt and shipment of stock over the complainant—an injustice which no railroad company in the exercise of its *quasi* public functions ought to be permitted to inflict upon any one engaged in a lawful and necessary pursuit. The power to prevent such an abuse is, as we have already affirmed, vested in courts of equity until the Legislature shall provide another and different remedy.

A preliminary injunction, corresponding in its scope with the restraining order heretofore issued, is therefore granted on complainant's entering into a bond in the penalty of $20,000, with securities to be approved and accepted by the Clerk, conditioned to prosecute the suit with effect, or in the event he fails to do so that he will pay the defendant all such damages respectively sustained by reason of the wrongful suing out of said injunction.

The Vermont Railroad Decision.

The Supreme Court of Vermont is entitled to credit for speaking in a way to be understood this time, whatever may be thought of its conclusions. Ever since the decision of 1877, in which Judge Barrett delivered the opinion of the Court, there has been a dispute among the lawyers as to whether the Court then held that the managers had been judicial receivers from the time the "compromise decree" was made in 1864. The general reader, both lay and professional, interpreted the opinion as holding that they had not been receivers, but only agents of the parties; but the attorneys for the managers saw that this would possibly subject their clients to a vast personal liability, and the holders of the trust debt saw that it might imperil the claimed superiority of their lien, consequently the decision was attacked by those interests, in court and out of court. As soon as possible the case was brought before the Supreme Court in another form. While it was pending, Judge Barrett failed of a re-election, for the first time in 23 years. When it was decided, the opinion was written by Judge Royce (now Chief Justice), who had presided over the management in the Court below, known as the Franklin County Court of Chancery. In this decision it was expressly asserted that the Barrett decision was not reversed, but it was held that whether the managers had been or had not been the receivers from 1864 to 1873, they had been believed to be such by all parties in interest, and consequently the same legal results followed and the same liabilities of the property attached as if they had been. The present decision, in which the opinion is given by Judge Redfield, re-asserts this doctrine incidentally, but goes further, and holds very distinctly that the compromise of 1864 did not take the case out of court; that it was then properly in court as an advisory proceeding, and was continued by agreement for effectuating results reached. Whether this is right or wrong will probably continue to be debated, but it is not obscure, for which all should be thankful.

Two important results seem to have depended upon this question of receivership: one relating to jurisdiction and procedure, and the other relating to the validity of a large portion of the debt. Shortly after the Barrett decision was made in 1877, certain of the old security-holders began equity proceedings in the United States Circuit Court for the District of Vermont. The railroad managers demurred to the jurisdiction, on the ground that they were receivers under the state court, which was in course of full adjudication of the questions involved and of complete judicial administration of the property. Two exhaustive hearings were held, and after each one Judge Wheeler entertained the cases, taking full jurisdiction. It seems that he interpreted Judge Barrett's opinion as holding that the receivership ended in 1864, but how far he was governed by this remains to be seen. Of course no one questions the right of a United States court to determine its jurisdiction for itself, regardless of the reasoning or supposed conclusion of a state court. But an interesting question of comity arises here, and as the cases are still pending before Judge Wheeler, it is to be presumed that they will be clung to with great tenacity by the parties bringing them, who now must have lost the last ray of hope of any substantial relief from the state court, and who will doubtless urge that the federal court should in no way be influenced by the state court's reassertion of authority after the federal court had stepped in.

The decision that there is and has all the while been a judicial administration of the property carries with it two conclusions of great importance to the parties, one of which is novel to the public and important if true. The first is that all debts legitimately contracted by the receivers—or "managers," as Judge Redfield thinks the receivers of a railroad should be called—constitute a lien paramount to all others upon not only the income but the body of the property itself; a lien in the nature of an equitable mortgage, which can be enforced by foreclosure. It has been decided by other courts (for the first time, we believe, in Alabama a few years ago) that receivers' certificates should have precedence of mortgage securities in sharing the income, but it seems to have been reserved for a Vermont railroad management to create an administrative debt supposed to be greater than the value of the property, and for the Vermont court to hold that justice and equity require that such a debt gives a title prior to that given by a mortgage, title deed or charter. In view of the enormous scope and untold hardship of such a decision, it may seem like belittling the theme to criticise the learned judge's style of expression; but the numerous sufferers will look in vain for one drop of balm, one word of commiseration of their misfortune, and on the contrary will be pained with the cool assertion that "such is the common fate."

To the credit of human nature and of honest government we must be permitted to believe that such is not the common fate of those who loan money upon mortgage security, or who invest in companies upon the faith of individuals, or who do or consent to what they believe is under the sanction and supervision of a court. Mines sometimes fail, markets fluctuate, factories are burned or are swept away by flood, and by many similar unforeseen events it does often happen that investments are impaired or lost. But we doubt if there is another case on record where a business or judicial management, extending through twenty-seven years of high average industrial growth and prosperity, has succeeded in completely swamping the craft and cargo with which it set out.

Perhaps the most interesting point of all is the fact that one of the roads in this "pool" (we use Judge Redfield's own expression) was a mere leasehold estate. This is the Vermont & Canada. It was leased to the Vermont Central perpetually, for a rental of 8 par cent. on a capital of three millions, with security upon the income of the Central for this rent and with right of action to recover possession if at any time it remained six months in arrears. It has now been ten years in arrears, and those interested in the company have been appealing to the courts in every conceivable form of action for relief, only to be now told that they either consented to the acts which caused the debt, or have acquiesced in them since. Of course it does not become us to say that the Court has made a finding not justified by the facts, of which they are presumed to have more knowledge than we, and well-founded in law, of which they are known to be better judges, but no recent consent or acquiescence is claimed by anybody, and what is said to have occurred before is shown by the record as having been made expressly subject to the prior rental claim. Now for the Court to hold that a leased estate is subject to a general debt of the lessee, and can be absorbed by it, is to introduce a novelty in law as dangerous as we believe it to be unjust. It makes no difference with this principal that the lease was perpetual; it was perpetual only if rent was paid; it was perpetual, subject to defeasance, on the condition being broken. How strange it seems that a "primary party," with rights already decreed in the Supreme Court and a remedy "nominated in the bond," that is, in the very title of the receivership, should knock in vain for ten years at the door of chancery for relief, while the party responsible for all the loss should be able in two years to begin and bring to close a proceeding that destroys the interests he was appointed to protect. We do not say it is not legal; we only say it is strange; we do not say it is not honest; we only say it is hard; and it seems especially strange and hard when the sufferers had every reason to suppose that their investment had already received the highest sanction of the law, and was watched over by this same court.

There are many minor questions in the case not yet passed upon, such as disputed items in the long unsettled accounts, and whether or not the floating debt of the trust is paramount in lien to the funded debt of the trust. This the Court sees no occasion to pass upon now, but pretty distinctly intimates, nevertheless, that the floating debt is superior. To be consistent, it ought so to hold. "The last shall be first and the first last." Perhaps this very year the managers may create a floating debt greater than the value of the property. If they do, the public will unquestionably be treated to the spectacle of all the holders of the first and second equipment loans, and of the income and extension bonds of the Vermont & Canada guaranteed eights, and of the whole dictionary of modern securities that are not secure, going up to Vermont and offering them as voluntary tribute to the praise and glory of the strongest, or casting them like green twigs into the open grave of the "primary parties," exclaiming in tremulous tones and with unselfish thoughts, "Alas, my brother!"—*Boston Advertiser*

Passenger Meeting of the Joint Executive Committee.

The following is the official report of the proceedings of the Joint Executive Committee (Passenger Department), at a meeting held at the office of the Chairman, No. 346 Broadway, New York, July 28 and 29, 1882.

The following roads were represented:
Michigan Central, H. B. Ledyard.
Great Western, William Edgar.
New York, Pennsylvania & Ohio, J. M. Ferris, A. E. Clark.
Grand Rapids & Indiana, J. N. McCullough, A. B. Lent.
Cleveland, Columbus, Cincinnati & Indianapolis; Indianapolis & St. Louis; Dayton & Union, O. B. Skinner, A. J. Smith.
Pennsylvania Company, J. N. McCullough, E. A. Ford, J. M. Chesbrough, C. W. Adams.
Lake Shore & Michigan Southern, John Newell, W. P. Johnson.
Detroit, Grand Haven & Milwaukee, T. Tandy.
Canada Southern, W. H. Hurlburt.
Lake Erie & Western, G. W. Smith.
Marietta & Cincinnati, T. P. Barry.
New York & New England, A. C. Kendall.
Wabash, St. Louis & Pacific, John C. Gault, H. C. Townsend.
Fitchburg, John Whitmore.
Baltimore & Ohio, C. K. Lord.
New York, Lake Erie & Western, John N. Abbott.
Pennsylvania, Frank Thomson, J. R. Wood.
New York Central & Hudson River, E. J. Richards.

FRIDAY'S PROCEEDINGS.

The meeting being called to order, the Chairman said:

MR. FINK'S ADDRESS.

"GENTLEMEN: The object of this meeting is, in the first place, to perfect the agreement between the Western roads for division of passenger traffic, and in the second, to agree upon differential fares. The subject of differential fares has occupied the attention of the Trunk Line Committee and the Western Committee for some time, and there seem to be great difficulties in the way of final conclusions. Under the contract, commissions are to cease, and the differential fares are to take the place of the commissions. In circular 367 all that has been done in determining the differential fares has been communicated to you, and it is the object of this meeting to perfect the arrangement, to adopt plans by which differential fares can be put into effect.

"The trunk line agreement for division of passenger traffic has been in operation for five months, with excellent results so far, but its benefit cannot be experienced in the full degree in which it should be until the differential fares are put in force, and commissions abolished. There is some indication at present that, if these questions are not settled promptly, there will be a general breaking down of the passenger tariffs. It is for this meeting to put a check upon that tendency, and prevent demoralization.

"If you can do nothing here to perfect your agreements, both as to the division of traffic and as to the differential fares, or in case you fail to abolish commissions, to adopt some plan by which commissions cannot be used for the purpose of reducing the tariffs, I very much fear that you will be deprived of receiving reasonable compensation from your passenger business.

"Since the trunk line agreement has been in effect, although not perfect as yet, the passenger earnings, not only of the trunk lines, but of all the roads in the West, have shown a very gratifying and satisfactory increase from month to month. I notice by the trunk line reports received since the month of February that there has been an increase of $200,000, from one month to the other, and it would be a very great pity if we were obliged to go back to the experience of last year. The management of this passenger business is in your hands, and if you break down again you ought to be held responsible for it.

"I hope your wisdom will provide some means to prevent such results.

"To go back to the past history of our operations, a contract was signed by the following roads:

"The Cleveland, Columbus, Cincinnati & Indianapolis Railway.
" The Indianapolis & St. Louis Railroad.
" The Dayton & Union Railway.
" The Lake Erie & Western Railway.
" The Michigan Central Railroad.
" The Lake Shore & Michigan Southern Railway.
" The Pennsylvania Company.
" The Pittsburgh, Cincinnati & St. Louis Railway.
" The Terre Haute & Indianapolis Railroad.
" The Great Western Railway.
" The New York, Pennsylvania & Ohio Railroad.
" The Canada Southern Railway.
" The Baltimore & Ohio Railroad.
" The Wabash, St. Louis & Pacific Railway.

"It was the understanding at the last meeting that these roads would undertake to carry out this contract, whether other roads became parties to it or not. It is upon this theory that we have proceeded. We have obtained statements of the earnings of all roads that signed this contract, except the Wabash, St. Louis & Pacific, and we were to be ready at this meeting to agree upon percentages, but we will be unable to do so until the Wabash, St. Louis & Pacific have reported their earnings."

Mr. GAULT.—Mr. Chairman, I would like to ask you if I did not send you a statement?

The CHAIRMAN.—There was one sent, but it was to be revised. You had not come to a final decision as to the roads of your system that should come in.

Mr. GAULT.—I remember sending the statement, and I remember saying to you that there was a difficulty as to our line to Detroit, which we proposed to put in. This is a new line just open, and we had no previous record of its earnings. I got the earnings as near as I could, and it was thought we would come in with our lines at St. Louis and Detroit on earnings about so much per mile.

The CHAIRMAN.—At the last meeting, it was agreed to submit new and corrected statements; it was understood that the former statements were not to be final, and were only approximately correct. There was great necessity for getting an absolutely correct statement, certified to by the auditors. We have now all except yours. We understand that there is some difficulty about the number of roads you should report, but that was to be the subject for future consideration.

Mr. GAULT.—I was not present at the last meeting, but I understood that there were to be new statements made. The truth is, our Auditor could not possibly give you the exact earnings. We take in roads from time to time. The business passes over part of our main line, and we do not keep the accounts in such a way that they can be eliminated and enable us to give you the exact earnings, but we will do the best we can. Mr. Townsend and I were both away, and I supposed our Auditor would furnish Mr. Townsend with the figures.

The CHAIRMAN.—This meeting was called for the purpose of arranging percentages to be allotted to each of the roads which have signed the contract, but as the statements of the Wabash Railroad are not in, nothing further can be done in regard to that matter, and I suggest that the statements of the Wabash be made as soon as possible; and when they are received I will call another meeting for the purpose of finally arranging percentages.

Mr. GAULT said that the statements would be furnished at the earliest possible date.

The CHAIRMAN said: We can now proceed with the consideration of the differential fares. This question is one that not only interests the roads that have agreed to enter into the contract for the division of passenger earnings, but all the roads upon the Joint Executive Committee, whether they are parties to the contract or not, and it should be dealt with accordingly.

"It is acknowledged that it is impossible to maintain passenger fares as long as commissions are being paid, and these commissions are being used by commission agents to reduce the fares. The principle upon which the differential fares are to be established is, that the benefits of the lower rates that it may be necessary to make in order to procure business for the passenger lines laboring under disadvantages should accrue to the passenger, and not to middle men and commission agents. This is undoubtedly the correct principle, and it should have the support of every road represented upon the Joint Executive Committee.

"The question involved is an important one. The earnings of the roads that have signed the agreement amount to about $24,000,000 per annum; the earnings of the four trunk lines amount to about the same—together, $48,000,000. A large portion of this $48,000,000 of earnings is paid out to middle men, and the public receives no benefit; neither do the railroads. This loss of revenue is only rendered possible by the want of co-operation between the railroads—some of their managers still believing that they can make larger earnings by cutting fares, and that they can reduce their fares below tariff without being found out and followed—a delusion which it is strange that sensible people should labor under when all the experience of the past shows the contrary to be true.

"The action of a single road, whose passenger earnings may not amount to $200,000 or $300,000 per year, can bring about a demoralization of the tariffs of the railroads of the whole country. Hence the necessity that the roads having important interests should at least co-operate and make an effort to control their property intelligently and in a business-like manner, and protect themselves against such action."

After a general discussion upon the subjects mentioned in the Chairman's address, Mr. Newell offered the following resolution:

APPOINTMENT OF COMMITTEE TO DETERMINE PERCENTAGES.

"*Resolved*, That the general passenger and ticket agents of the roads which have signed the Western lines contract for division of passenger earnings shall act as a committee, in conjunction with the Commissioner, and arrive at percentages upon which the earnings of the different roads, under

the agreement, shall be divided. Said committee shall also use their endeavors to induce other roads to become parties to the contract."

STATEMENTS OF EARNINGS.

The Chairman requested monthly statements of passenger earnings from May 1, 1882, and will issue circular calling for same.

WHEN CONTRACT IS TO TAKE EFFECT.

After discussion, it was

"*Resolved*, That the contract between the Western lines for division of passenger earnings shall take effect from May 1, 1882; the question of commissions and differential fares to be left open for settlement hereafter; said date to be changed by agreement if considered expedient."

DIFFERENTIAL FARES.

Joint Executive Circular No. 367, prepared for consideration of the roads interested, was taken up and discussed. The general opinion was expressed that it was impossible to make differential fares separately for trains, and to simplify the matter, that it would be better to make differential fares by routes, averaging the advantages and disadvantages of different trains by said routes.

Adjourned to Saturday, July 29, 1882.

SATURDAY'S PROCEEDINGS.

DIFFERENTIAL FARES (CONTINUED).

After discussion, it was

"*Resolved*, That the general passenger agents present in a general way such differential fares as they would be justified in asking, and which would secure their roads an equitable share of the competitive business."

Acting upon the general conclusions which were arrived at, at the meeting of Friday, it was proposed that the exact fares by the different routes should be established from each city.

Accordingly, the following first-class fares were agreed upon from Cincinnati, St. Louis and Chicago.

CINCINNATI TO NEW YORK.

	First class.	Second class.
New York, Pennsylvania & Ohio	$16.00	$15.00
Marietta & Cincinnati	17.00	15.50
Cleveland, Columbus, Cincinnati & Indianapolis	17.00	15.50
Pittsburgh, Cincinnati & St. Louis	18.00	16.00

CHICAGO TO NEW YORK.

	First class.	Second class.
New York, Lake Erie & Western and connections	$18.00	$16.00
N. Y. C. & H. R. and connections	20.00	17.00
Balt. & Ohio	18.00	16.00
Penna. Co.	20.00	17.00

ST. LOUIS TO NEW YORK.

	First class.	Second class.
Wabash and connections	$22.25	$19.25
Indianapolis & St. Louis	22.25	19.25
Ohio & Mississippi and Baltimore & Ohio	22.25	19.25
Ohio & Mississippi and New York, Penn. & Ohio	21.25	18.75
Vandalia	24.25	20.25
Chicago & Alton and Lake Erie & Western	21.25	18.75

Regarding second-class fares, it was maintained by several of the members present that they should be alike by all routes, as it is claimed that there is no difference in the accommodations furnished by the different roads; this view was opposed by others.

The second-class fares shown in the above table were proposed and discussed without final agreement or acceptance. The same are to be the subject of further consideration, and if they cannot be agreed upon are to be referred to arbitration.

It was

"*Resolved*, That differential fares established eastward from Cincinnati, St. Louis and Chicago shall apply in compiling fares from points beyond."

COMMISSIONS.

The necessity of equalizing commissions *via* Chicago and St. Louis from Texas and Missouri River points was discussed, and it was decided that it would be proper, if any commissions were paid to Cnicago, that the corresponding portion of that commission from Mississippi River points to Chicago should be paid by the St. Louis roads, so as to practically abolish the payment of commissions east of Chicago, and east of a north-and-south line drawn through Chicago; the roads west of said line and east of St. Louis to pay their proportion of the commission east of the Mississippi River.

It was also agreed that the railroads represented on the Joint Executive Committee would make efforts to induce the roads west of Chicago to confine the payment of commissions to points west of the Mississippi River, and, if possible, to abolish them altogether, or at least to reduce them to a minimum.

AGREEMENT TO PREVENT REDUCTION OF EAST-BOUND FARES FROM ST. LOUIS.

The representatives of the St. Louis lines drew up an agreement to maintain established passenger fares from St. Louis, and not to allow commissions to have the effect to reduce fares; certain penalties for violations of the agreement by connecting roads were decided upon. The agreement is to take effect from time signatures of St. Louis roads are obtained, and notice given by the Chairman The agreement was signed by Messrs. Townsend, Smith and Chesbrough, and mailed to Mr. W. B. Shattuc, General Passenger Agent, for the same purpose, from whom the following reply was received:

"CINCINNATI, July 31, 1882.

"I have to return the agreement as written, without my signature. If Cincinnati is included in its provisions for west-bound business, I will sign it cheerfully. All the gentlemen to the St. Louis agreement represent lines doing business to and from Cincinnati and St. Louis. I will go further than these gentlemen have, and agree to maintain rates both from Cincinnati to the Southwest and Northwest, as well as from St. Louis to all eastern points; agreement to go into effect soon as I receive notice from you that the other gentlemen have agreed to it. Three-fourths of all lines in interest to decide whether there has been an infraction of the agreement or not I return old contract, with new one made, in accordance with my views, by mail to-night.

(Signed) W. B. SHATTUC."

Answered as follows:

"NEW YORK, Aug. 1, 1882.

"Mr. W. B. SHATTUC, Cincinnati, O.: I regret that you were not present on Saturday to arrange for the maintenance of rates from Chicago, St. Louis and Cincinnati. I do not think it possible to arrange a matter of this sort by telegraphic correspondence. I suggest that you hold a meeting of the lines from the different cities and arrange matters among yourselves. There should certainly be sufficient wisdom among the passenger agents not to enter into another war of rates at this time. Please inform me what lines you think should be represented at such a meeting, and I will suggest it to the general managers of the road.

(Signed), ALBERT FINK."

AGREEMENT TO PREVENT REDUCTION OF EAST-BOUND FARES FROM CHICAGO.

Agreement similar to that proposed from St. Louis was drawn up and sent to representatives of Chicago lines for execution, if agreed to.

ESTABLISHMENT OF PERCENTAGES AND ADOPTION OF DIFFERENTIAL FARES.

It was agreed that the Chairman shall call a meeting upon receipt of the passenger earnings of the Wabash, St. Louis & Pacific Railway, for the purpose of establishing percentages for division of earnings, under the contract, and adoption of the differential fares agreed upon.

ALBERT FINK, Chairman.

R. T. BRYDON, Secretary.

General Baggage Agents' Association.

The second meeting of this association was held in Cleveland, O., Aug. 9, President F. J. McWade in the chair, and Mr. Mason B. Starring Secretary.

The following members were present:

Robert Adair, Houston & Texas Central.
R. R. Bentley, Pennsylvania Company.
J. B. Browning, Louisville & Nashville.
C. N. Buck, Jeffersonville, Madison & Indianapolis.
S. P. Cox, Cincinnati, Hamilton & Dayton.
H. P. Dearing, Michigan Central.
J. L. Freeman, Lake Shore & Michigan Southern.
F. J. McWade, Central Railroad.
I. J. Marston, Chicago, Rock Island & Pacific.
S. E. Quick, Chicago & Grand Trunk.
W. J. Robinson, Ohio & Mississippi.
M. Simons, Parmalee Transfer Co.
J. V. Smith, Baltimore & Ohio.
Henry Starring, Grand Rapids & Indiana.
Mason B. Starring, Chicago, Burlington & Quincy.
F. M. Thomas, New York, Pennsylvania & Ohio.
G. S. Venn, Indianapolis Union.
P. Walsh, Atchison, Topeka & Santa Fe.
H. A. Winter, Illinois Central.

The President delivered the following address:

"We have met here to-day to receive and act upon the report of the committee appointed to draft a constitution and by-laws and consider other measures as may be necessary to complete the organization of our Association.

"It is commonly understood, I believe, that all of us who participated in the movement for an Association of General Baggage Agents at Louisville, did not do so with the expectation of accomplishing anything great or startling, but to derive such benefits as we could from personal intercourse of ideas pertaining to the details of baggage business. These benefits of course will be in exact proportion to the amount of interest taken in the Association by individual members, and to the amount of study and thought which they devote to the subject of baggage business. That the field of our operations is continually widening, and that the necessity for such study is constantly increasing, does not, it seems to me, admit of question. I think it will not be necessary for most of you to go back further than the year 1880 to realize this fact, and that the astonishing growth of the passenger business ever since that time has brought with it a corresponding increase in the labors and responsibilities of the baggage departments. If each member, in connecting himself with an association of this kind, does so with a sense of personal responsibility to do what in him lies to promote its success there can be no doubt that it will be of great value to us all, as it is in the very nature of things that when a body of men engaged in the same line of business study the details of that business and meet at stated intervals to compare notes suggestions will arise which would never have been thought of in the seclusion of their offices and deprived of contact with other men and other ideas.

"The Association was conceived in a progressive spirit. It is to be hoped that a sufficient number of general baggage agents will continue to be animated with this spirit and give the Association and the purposes for which it was formed their best thought and endeavor. Such a course will certainly result in benefit to their business and redound to their personal credit.

"It has occurred to me to suggest the adoption of some better means than we have at present for bringing to the attention of all members prior to each meeting of the Association any subject which any individual member would like to have discussed.

"Oftentimes thoughts and suggestions will occur while at home engaged in our duties, which will be lost sight of unless they can be communicated on the spur of the moment. I have suggested the insertion of a clause in our constitution covering this point, whereby such communications can be sent to a single individual and by him forwarded to all the members of the Association, so that they can enter upon discussion of the subject at the next meeting armed with facts and figures and carefully prepared statements, which will make such discussion valuable.

"I would also repeat the suggestion made at the last meeting, that each member familiarize himself with whatever manual of rules of order may be adopted by the Association, as such familiarity on the part of members of any deliberative body is indispensable in order to accomplish the work for which it is designed in the best possible manner.

"With the results accomplished thus far by our Association I think we have occasion to feel gratified. The suggestion to adopt a system of storage charges had its birth in the Louisville convention, and most of the lines there represented have put in operation this system, and are thus in receipt of a very appreciable revenue. A gratifying understanding was also reached upon the subject of the use of the special check. While the diversity of methods and variety of checks, which have come into use in years past without any general understanding or concerted action, present many difficulties in the way of adjustment, we may hope in time to happily overcome them and to place all the details of our business upon a satisfactory basis."

The first business before the meeting was the reception of the report of the Committee on Constitution and By-Laws. The draft presented was ordered printed, to be taken up at the morning session for consideration and action.

Some measures connected with details of baggage business were discussed.

Members of the Association then exchanged printed lists of unclaimed baggage lying at their respective headquarters. This was followed by reports of claims for indemnity on account of lost, strayed and stolen baggage. This feature is expected to be of considerable value among the purposes for which the Association was formed. The complications that arise at times in the transportation of a piece of baggage are almost infinite, and in the treatment and settlement of cases many nice legal points are often involved. The question of exchanging checks then received consideration. The subject was finally referred to a committee to consider and report at the morning session.

On the second day, at the morning session, the constitution was adopted and an executive committee elected, consisting of Messrs. Bentley, Browning and Phillips.

At the afternoon session the committee appointed to prepare some feasible means of abolishing the practice of exchanging checks, presented a form of receipt to be substituted therefor, and urgently recommended its adoption by all the lines. After a general discussion of the recently-adopted system of charging storage on unclaimed baggage, the following resolution was adopted:

"*Whereas*, The practice of collecting storage charges has been introduced by most of the lines represented in this Association with very satisfactory results, be it

"*Resolved*, That we recommend and urge its general adoption as a means of intelligently determining the proper amount of baggage to be allowed free on single passage tickets."

It was agreed that each member should weigh baggage at one or more stations on his line for one month or more, and obtain the general average, to be reported at the next convention. The following very important resolution was also adopted:

"*Whereas*, The practice of receiving baggage up to the last minute prior to the departure of each train necessitates undue hurry, which is productive of errors and confusion, and also opens the door for imposition on the part of commercial travelers, be it

"*Resolved*, That we unanimously urge upon our respective managements the advisability of notifying the public that the right of the railroad company is reserved to hold baggage unless presented and checked at a certain time prior to the departure of the train for which it is delivered, the length of the time to be determined by each individual road."

Upon motion, the Chair appointed a committee of three to investigate the advisability of removing all railroad checks from the hands of all baggage, transfer and express companies, and report some feasible mode of effecting their arrangement. Said committee as appointed consists of Messrs. Smith, Browning and Robinson.

After disposing of the usual routine business the Association adjourned to meet in New York on the third Wednesday in February next.

THE SCRAP HEAP.

South Chicago Steel Works.

The new steel plant of the South Chicago steel Works now in operation consists of four blast furnaces, producing 6,000 tons of iron per week, which is not run into pigs, but taken in 10 and 12 ton ladles directly to the three 10-ton converters. The steel from the converters is cast in one-ton ingots, which are carried directly to the four Siemens gas-furnaces, and from them, often heating to the three-high blooming train, where they run through and back, making eleven passes in less than 1½ minutes. From the last roughing pass the bloom is carried on rollers directly to the rail mill, where in seven passes it is reduced to a rail 90 ft. long, and delivered in front of the saws which cut it into three 30 ft. rails. From the furnace till the rail is put on the platform of the drilling machine requires less than three minutes; work to full capacity. It is said 40 tons of ingots and 120 tons of rails an hour can be turned out. The advantages of this plant are summarized as follows:

"1. The entire saving of the expense of the casting and melting of the pig iron. 2. The saving of the cutting of the bloom and reheating and handling of the billets. 3. The saving of the roughing train and of the time and labor of the difference between rolling one and a three length rail. 4. The saving of four crop ends to each three rails."

A Startling Ride.

Here we were to stop at the village of Torch Lake for some time, to unload machinery, giving us time to visit the Calumet & Hecla copper mines, the largest in the world. Two little tracks lead from the wharf directly up over the mountain, a rise of about 350 ft. to the quarter mile. A number of us resolved to make a trip up to the mine. One of the foremen kindly rigged a short box-car, by nailing planks across, and we all piled in, and sat waiting in the broiling sun, wondering how we were to be pulled up the hill. After a long time our curiosity was gratified in a way that made us a trifle skeery, and caused some to give up the pleasure of the journey. The principle on which the cars run was very simple. The cars were attached by a long cable, and when they came down the hill laden with ore, they pulled, or rather jerked, the empty cars up the hill. We had no conductor and there was no particular starting signal. The first intimation we had that we were ready was a sudden and terrific jerk followed by the grand and unanimous acrobatic feat of a back somersault by the whole company, a chorus of feminine shrieks and a frantic gesticulation of arms, legs and umbrellas. The car moved on, and by the time we all got back on our seats many had all the ride they desired. But, alas, they were now doomed! for there was no stopping of this train until the summit was reached, and no getting off without tumbling from that terrible trestle. We plunged along, now swiftly, now slowly, and at every fresh start our heads would fly over backward, at the great risk of dislocating our necks. Soon we began to tear along madly and sway from side to side. Just then a dark object whizzed by. It was the ore cars on the down track. Their speed was now frightful, and ours was necessarily in the same proportion, for the faster they went down the sooner we reached the top. We finally arrived, more frightened than hurt, over the brow of the hill. The mine was now four miles distant. Our car was hitched to an ore train, and a locomotive drew us the remainder of the distance. If the ride by cable was frightful, the second haul was simply terrific. We had still a deep grade to ascend, and the engineer opened wide the throttle and let the "old thing just hum." We went ahead ten feet at a jump, often three feet above the rails, but Providence alone brought us down on the track again. We swayed from side to side until the car grazed the trees by the wayside, and when we snapped the whip around sharp curves the train would swing out in a straight line, held fast together by too tenacious couplings; and all this time we were enveloped in a dense cloud of smoke and cinders, which numerous umbrellas could not ward off. When at last we did arrive at the Calumet mine we were so changed in appearance that we were taken for a band of striking miners, until the spokesman explained. * * * On the way down the same reckless rate of speed was kept up. An unfortunate cow stepped suddenly from the woods on the track. Our car struck her, and she shot off into the air over the edge of the mountain, and landed on our boat at the wharf beneath.—*Correspondence Rochester Democrat and Chronicle.*

Hunting Cars.

The Wisconsin Central Company has put upon its road a car for the convenience of hunting parties. It is a long, twelve-wheel easy-riding coach of the finest finish and equipment. The interior is set off in highly-polished hard-woods, and finished in plush. It is supplied with berths for members of a fair-sized hunting party, and for cook and porter. In the cooking apartment are a French range and complete outfit of cooking utensils. The gun racks, ammunition drawer, and dog kennels are well arranged, and space is set apart for baggage-room, ice-closets, game-cooler, etc. The look-out is fitted up with plate-glass mirrors, elegant carpet, etc. This is the first car of the kind ever owned by a Wisconsin company, but the Pennsylvania Railroad Company built two similar cars some time ago.

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EDITORIAL ANNOUNCEMENTS.

Passes.—*All persons connected with this paper are forbidden to ask for passes under any circumstances, and we will be thankful to have any act of the kind reported to this office.*

Addresses.—*Business letters should be addressed and drafts made payable to* THE RAILROAD GAZETTE. *Communications for the attention of the Editors should be addressed* EDITOR RAILROAD GAZETTE.

Contributions.—*Subscribers and others will materially assist us in making our news accurate and complete if they will send us early information of events which take place under their observation, such as changes in railroad officers, organizations and changes of companies, the letting, progress and completion of contracts for new works or important improvements of old ones, experiments in the construction of roads and machinery and in their management, particulars as to the business of railroads, and suggestions as to its improvement. Discussions of subjects pertaining to* ALL DEPARTMENTS *of railroad business by men practically acquainted with them are especially desired. Officers will oblige us by forwarding early copies of notices of meetings, elections, appointments, and especially annual reports, some notice of all of which will be published*

Advertisements.—*We wish it distinctly understood that we will entertain no proposition to publish anything in this journal for pay,* EXCEPT IN THE ADVERTISING COLUMNS *We give in our editorial columns* OUR OWN *opinions, and those only, and in our news columns present only such matter as we consider interesting and important to our readers. Those who wish to recommend their inventions, machinery, supplies, financial schemes, etc., to our readers can do so fully in our advertising columns, but it is useless to ask us to recommend them editorially, either for money or in consideration of advertising patronage.*

MAINTAINING COMPETITION THROUGH THE COURTS.

That a railroad should give exclusive rights to one stock-yard is held to be an unlawful discrimination by the decision of Judge Baxter, of the United States Court, made on granting a preliminary injunction recently, against a railroad which refused to deliver stock at a private stock-yard in Cincinnati, except through the yards of the United Railroad Stock-Yard Company. Judge Baxter holds that every railroad must deliver freight to every one on equal terms, and that the United Stock-Yard Company must be treated like any other consignee, and not as the exclusive stock-yards station of the railroad in Cincinnati. The decision, it should be remarked, is on granting a temporary injunction, and the case has still to be argued and decided on its merits. The decision, however, is in the same line as one by the same judge and by Judge McCrary, with regard to the rights of express companies, and the grounds of either would probably never have been taken if the railroad companies had conducted—and had always conducted—the express business and stock-yards business themselves directly, and not through other corporations making a separate charge therefor. The questions involved are not free from difficulty, as the services, especially in the case of stock-yards, are of a mixed nature, involving those of a common carrier and others which have slight relation to transportation. The decisions tend in the direction of protecting free competition in the conduct of those kinds of business which, as it were, stand between the public and the railroads. In some kinds of these businesses possibly free competition would be a public advantage; but in others, certainly in the express business and probably in the stock-yards business also, the inevitable effect of enforcing it will be a large addition to the cost of the service; and we feel certain that the final result will be the abandonment of the policy; though the railroads may have to submit to some restrictions, or give some guarantees to the public in farming out these privileges, if they do not conduct them themselves. In the case of stock-yards, direct management by the railroad is impolitic, because the work of all the roads entering one place, to be done effectively and economically, needs to be done at one place and under common regulations. The immense saving and public advantage of the first of the great stock-yards, the Union Stock Yards of Chicago, were universally admitted after they were opened, and they could have been secured only by concentration, and by establishing a *quasi* monopoly. Still, once established, it ought to be able to sustain itself against all possible competition, though it might not have been possible to establish it without giving it exclusive privileges.

The principle involved in this decision, apparently, would compel every railroad to give all sleeping-car companies, as well as express companies—equal privileges on their lines; that is, they are to be treated as customers of the railroad company, like any other applicants for the services of a common carrier. The Pullman Company may require the New York Central to haul its sleeping and parlor cars on the same terms and with the same privileges as the Wagner cars, and *vice versa* of the Pennsylvania. The latter now has a "limited express," at exceptional speed, between New York and Chicago. The Wagner Company may require that a similar train of its cars be run. If this is done, the train will certainly not pay expenses. So, if half a dozen express companies require a car on one train, not only will the express business be spoiled, but the running of the trains will be made difficult or impossible.

The fact is that there are many parts of transportation business, or of business closely connected with transportation, which cannot be conducted properly except by one organization on one road or at one place. They are and ought to be "monopolies," in that sense, as much as the running of the trains themselves on a railroad should be exclusively controlled by one organization. In the early days of railroads it was thought that this latter would be a dangerous monopoly, and would not be necessary; experience has taught that whatever may be the evils involved in such a monopoly, it is indispensable to economy and safety—that the disadvantages of the monopoly are infinitely less than those of such competition as is practicable in this field.

Meanwhile the railroad companies are inclined to encourage the public opinion which is embodied in decisions like these, by loudly denying that they have any monopoly of any kind, and so virtually confessing that every monopoly is an unmixed evil.

We venture to predict that we never shall have any rational public treatment of transportation problems until it is generally acknowledged that railroad transportation, in many of its features, is and ought to be a monopoly, for the public good as well as other reasons, just as the postal service is and ought to be, though much more completely. Were it not that important portions of railroad traffic are constantly subject to a competition more intense than that in almost any other business, no one would think of questioning this. While in the field in which competition acts freely great improvements in transportation are manifestly due to the working of competition, yet in other directions, among which is that of reducing the cost and making uniform the price of transportation, and especially in abolishing "unjust discriminations," quite as important improvements have been made by the railroads extending their monopoly, such as it is, through consolidations, co-operation, stock-yard companies and the like. Nearly every step of the kind so far has been of public advantage; and those who most fear "monopoly" will doubtless confess that the condition of things is better for the community now than before the changes were made which reduced "competition." Nevertheless, such is the magic of the name, railroad managers (in this country and perhaps England only) very generally deny that there is any monopoly in their business. One may possibly hint that some unmanageable connection, which insists on terms or treatment which he does not like but has to put up with, has a "monopoly;" but as for his own road, his life being spent largely or chiefly in fighting its competitive battles, he is unable to see how it has any monopoly.

The mistake the public is apt to make is in endeavoring to maintain or establish competition in transportation where only a monopoly can be effective and economical. The public has such constant daily experience of the beneficent effects of free competition in most other branches of business, that it assumes that it must be equally desirable in railroad transportation, the more so as it does feel some of the evils of monopoly in that business; and does so, we may say, probably more where the railroads are worked by the state in the interest of the whole community than anywhere else, the monopoly there being perfect. And if free competition were applicable to this business in the same degree as to other business, doubtless it would be the best policy—would best secure good service, cheap service, improvements in service, and fair and courteous treatment. But it is certain that such competition is wholly inapplicable to railroad business, or applicable only by enormously increasing the cost of transportation, and so defeating the chief end in view. Competition is not secured by having two or three persons doing the same service, but only by a considerable number; and it needs no explanation that there cannot economically be six or eight different railroad routes between every two places. It is just as true, probably, that it would be great waste to have half a dozen stock-yards at Cincinnati at which all the railroads should receive and deliver hogs and cattle; only, as there once was such a multiplicity of yards, their existence is looked upon as possible, and the courts of course must protect whatever rights they possess. The law as it stands may protect them, though their existence may be a public disadvantage. And there is no doubt that there are many different degrees of relationship between such branches of business and transportation, and of advantage in concentrating the business. It will not do to push too far the convenience or advantage of the carrier and the possible advantage of making the business a monopoly. The courts will probably guard zealously the rights of an established business, and hesitate to confirm any arrangement which seems to create a new monopoly, and will require abundant proof of public advantage befor permitting it, where the law gives them any discretion. Competition where established should certainly be maintained if advantageous; and it is generally advantageous. But when the courts attempt in the public interest to establish a competition which would be a public injury, they will sooner or later have to reverse their decisions or have them overruled by legislation.

SIGNALS: WHAT OUGHT TO BE DONE ABOUT THEM.

There can be no doubt that the whole system, or rather the want of system, of railroad signals in this country is in a very unsatisfactory condition. Diversity like that which prevailed in Noah's ark exists everywhere. The codes of rules and the mechanical appliances differ on each line from those of every other line, and the growth and development of the appliances on each road goes on independently of all the others. Unfortunately every railroad officer seems to take up the subject as though there was no accumulated knowledge to guide him, or no laws which experience has evolved that would indicate what ought to be done. When he is obliged to adopt, improve, or extend a system of signals, the subject is taken up as though it was one that had never received any careful consideration before, but which must be evolved out of the inner consciousness or by the natural genius of some inventor, whose ability is apt to be regarded as in inverse ratio to his experience and knowledge of what others have done.

This is no doubt, to a great extent, due to the fact that there is hardly any subject connected with their duties of which railroad officers generally are so ignorant as they are of signals. Besides this, the signals do not distinctly come under the control and supervision of any one department. Their construction belongs generally to the machinery department, their maintenance to the road department, their operation to the transportation department, and their design to nobody, unless some inventive crank comes along and imposes on the credulity of the transportation manager, who knows nothing about construction, the engineer of the line, who is not a mechanic, or the superintendent of machinery, who is not familiar with the movements of the trains. Now it may be asserted without argument, and assumed as true, that no consistent or entirely efficient system of signals can be devised or maintained unless they are under the direction and control of some one competent head. The assumption, so common among railroad superintendents, that they individually can supply brains for the management of all the departments of a great railroad, is a ludicrous delusion. The art of all arts for the manager of a railroad, or of any great affair, to learn is that of safely delegating to others the duties for the performance of which he is responsible. No one person can ever be sufficiently familiar with the multifarious subjects and rapidly increasing complications involved in conducting a great railroad. No man can be a locating engineer, understand the laying and maintenance of track, the construction of bridges, of frogs and switches, be an architect of buildings, know locomotives well enough to determine how they should be proportioned, or understand how cars should be built, water stations and signals located, and at the same time be familiar with the traffic of the road, and comprehend that mysterious thing called "making rates," and the thousand details which are constantly demanding consideration, and require some action. Besides the fact that no one mind is capacious enough to comprehend all these subjects, there is the other principle, so generally lost sight of, that in some departments of railroad management a totally different kind of ability is required from that which is demanded for the performance of other duties. The attitude of mind and the methods pursued in conducting the transportation are quite unlike those required in the engineering and mechanical departments. Marked capacity for the performance of duties requiring what may be called

mercantile methods seems to be so dissimilar from the qualifications which an engineer or a mechanical superintendent should have, that it is extremely rare to find any one who is pre-eminent in each of these two different directions. The diverse qualifications seem to be incompatible or incapable of co-existence in the same individual. In other words, it is nearly always true that, just in proportion as a man excels other traffic managers or purchasing agents in the special ability which they possess for their duties, will he be inferior as an engineer or mechanic; and *vice versa*, eminent mechanical and civil engineers are rarely good traffic managers, and are generally worse purchasing agents.

For these reasons any department will probably be better managed if placed under the control of a specialist who knows the duties of his office better than he knows anything else, and as very few other persons know them, than it will be if it is controlled by those who to a great extent are ignorant of the duties they ought to perform.

It is true, of course, that the importance of a signal system increases in proportion somewhat to that of the number of trains, and that even now on many of our roads which have a light traffic and few trains a very simple system gives a high degree of security. But some of our lines are now getting many trains which are running at high speeds; and with rapidly increasing extensions the traffic is growing more and more complicated, and the need of good systems of signals is becoming of greater importance daily. As was said in the beginning of this article, the greatest diversity of signals and practice exists, and no tendency toward an evolution from this heterogeneous condition to a homogeneous one is yet manifesting itself.

What then should be done? The question might very naturally be asked by the manager of a railroad, "What ought we to do?" The answer to this will be suggested if we note what has been done in other analogous cases. When the Westinghouse brake was first introduced, and for a long time afterwards, it was found difficult to keep the apparatus on the cars in an efficient condition. Here, as in all cases, what was every one's business was no one's concern, and those who should have attended to it often did not understand their duties, etc., etc. Finally persons were appointed at the termini of important roads, who were especially delegated with the duty of keeping the brake apparatus in good working order. This at once cured the evil. The same thing has been done with reference to the case of sleeping cars and various other duties on railroads.

Uniformity, consistency and efficiency, however, are more important in the system of signals than in any of the other appliances used. To have it effective, it is essential, as it was in the case of the brakes, that it should be controlled by one head. Therefore the answer to the question is, appoint an intelligent, practical and clear-headed man, who has some considerable knowledge of signals, as superintendent of them. Let him be a sufficiently good mechanic to know how to make them, and let him have entire charge of the design, construction and maintenance of the signals, but have the working of them under the charge of the transportation department. This has been done on some of the English lines, notably the London & Northwestern Railway, with the happiest results.

On that road there is a large shop, especially devoted to the manufacture of signals, which is under the control of the superintendent of them. The signal department is, we believe, subordinate to the mechanical department of that line, but the reasons for it there are exceptional. From the fact that ordinarily the signals must be used by one department, maintained by another, and made by a third, there would seem to be abundant reason for making the signal superintendent independent of all the other departments, and subject only to the general management. This is especially important if, as is the case on so many American roads, the division superintendents are supreme on their divisions. If this is the case, and a person in charge of the signals must be subject to the authority of a different officer on each division of a line, it is impossible to establish or maintain a system which will be uniform or consistent with itself. This absence of some such centralized and supreme authority seems to be one reason for the frequent failure of the elaborate and costly signal arrangements on the Pennsylvania road. Each division superintendent there has his "views," and so long as each one can interfere with what should be the established practice on the line, a uniform practice is impossible. Until the Pennsylvania and other roads place the control of their signals under the authority of one person, who has more knowledge of signaling its division superintendents, and who therefore should and can in the special matters pertaining to his department exercise authority over them, and not they over him, there are certain to be gaps and loop-holes, as there have been on the line named, over which what should be the all-pervading block-system has not complete control.

If such supervision were once established over the signal systems of different important lines, it would then become the duty of such superintendents to understand what has been intrusted to them. The result would be that there would soon be a considerable number of men who would understand signaling well enough to be able to deliberate and discuss it with some degree of intelligence. It will hardly be regarded as slanderous to say that it would be difficult to find any considerable number of such men among railroad employés at present. When once any considerable number of railroads have such men it will be a comparatively easy step to bring them together for discussion, and then joint action and argument will naturally follow. The difficulty now in doing this is that if a meeting was called for the purpose of improving railroad signals and establishing a uniform system, most of the lines would be unable to send any one who knows enough of the subject to act intelligently about it. The appointment of signal superintendents would put men in training and set them to learning what must be known before it is possible to adopt any complete or satisfactory system.

Exports and Imports at Four Eastern Ports.

The struggle over the differences in the rates to the seaboard cities and the recent report of the Advisory Commission thereon give interest to the reports recently published by the Bureau of Statistics of the values of the exports and imports at the several principal ports of the United States. These figures should show what places are gaining and what are losing business, and which are gaining or losing faster than others.

The values of the exports of the four principal Eastern ports of the United States for the three successive fiscal years ending with June have been:

Exports:	1881-82.	1880-81.	1879-80.
New York	$344,496,451	$407,180,102	$392,560,090
Boston	62,471,426	74,433,650	59,238,341
Philadelphia	38,131,258	44,229,330	49,649,693
Baltimore	39,428,236	72,471,693	76,253,566
Total	$484,527,371	$597,315,975	$577,701,690

The percentages of decrease from 1880-81 and 1879-80 have been, at the several places:

From.	New York.	Boston.	Phila.	Baltimore.	Total.
1880-81	15.4	14.9	13.8	45.5	18.9
1879-80	12.2	*5.5	23.2	48.3	16.1

*Increase.

The percentages of decrease last year from 1880-81 were not very different at New York, Boston and Philadelphia, but at Baltimore the decrease was, proportionally, nearly three times as great as anywhere else. Compared with 1879-80, Boston shows a gain, while Philadelphia's loss is (proportionally) about twice as great as New York's, and Baltimore's four times as great.

The percentage of the aggregate export values of the four ports shipped from each has been:

	New York.	Boston.	Phila.	Baltimore.
1881-82	71.1	12.9	7.8	8.2
1880-81	68.2	12.3	7.4	12.1
1879-78	67.9	10.3	8.6	13.2

There has thus been an increase from year to year at New York and Boston, and a decrease at Baltimore, which latter was large last year. Philadelphia and Baltimore together had but 16 per cent. of the whole last year, against 19.5 the year before and 21.8 in the year 1879-80.

The year 1880-81 was the year just preceding the railroad war. It did not show anything unfavorable to New York in the export trade, it will be seen, but there was a considerable loss at Philadelphia and Baltimore and a considerable gain at Boston.

The imports of these ports in the same years were:

Imports:	1881-82.	1880-81.	1879-80.
New York	$493,011,361	$435,465,714	$459,937,153
Boston	69,504,057	61,960,131	68,503,136
Philadelphia	34,128,844	32,581,791	35,944,500
Baltimore	14,945,812	16,189,816	19,945,989
Total	$611,68 ,074	$546,197,452	$584,330,778

There being in the aggregate an increase last year of 12 per cent. over last year, and of 47 per cent. over 1879-80, the percentages of increase and decrease at the several places were:

From	New York.	Boston.	Phila.	Baltimore.
1880-81	Inc. 13.2	Inc. 12.3	Inc. 4.8	Dec. 7.7
1879-80	Inc. 7.2	Inc. 1.6	Dec. 5.0	Dec. 25.0

New York shows a considerable gain over either year; Boston a large gain over 1881, but only a small one over the previous year. Philadelphia imported about 5 per cent. less than in 1880 and 5 per cent. more than in 1881; Baltimore shows a considerable decrease from 1831, and a very large one from 1880. The percentage of the aggregate imports received at each of the four ports was:

Year.	New York.	Boston.	Phila.	Baltimore.
1881-82	80.6	11.4	5.6	2.4
1880-81	79.7	11.3	6.0	3.0
1879-80	78.7	11.7	6.2	3.4

In the imports as well as the exports there has been a steady increase in the proportion at New York, Boston has stood nearly stationary, while both Philadelphia and Baltimore have declined in rank, and have never held a very high one—especially Baltimore. Philadelphia and Baltimore received but 8 per cent. of the aggregate imports of the four ports last year, against 9 per cent. the year before, and 9.6 in 1879-80. Their percentage of the imports this year was just half their percentage of the exports.

In both imports and exports, therefore, New York and Boston have gained in the last two years at the expense of Philadelphia and Baltimore.

The year was an exceptionally unfavorable one for Baltimore exports, as by far the larger part of them are grain, which was a short crop last year, and especially bad in the country from which Baltimore receives chiefly. For while Baltimore receives from all parts of the country, its chief receipts are from the country south of that which markets most of its grain at the lake ports. This year, on the other hand, should be favorable to Baltimore, and in fact by the middle of July it had already regained its old rank as a grain receiver, and most of what it receives it exports. New Orleans was also affected by similar causes, though there the export values are made up chiefly of cotton, grain taking the second place. We have heretofore shown how its grain exports were greatly reduced last year. To effect this, however, there was not only the small crop of grain in the country which can ship to New Orleans conveniently, but also the rate of the low rail rates of the railroad war which made it more advantageous to ship direct by rail from St. Louis itself to the East.

The effect of the crop is seen working in the other direction at San Francisco, where the exports rose from $32,360,000 in 1879-80 and $35,096,000 in 1880-81 to $53,400,000 last year, and from 3.87 and 3.89 per cent. of the total exports of the United States to 7.12 per cent. It is true that the California wheat crop of 1881 was not greater and was even much less than that of 1880; but about half the crop of 1880 remained to be shipped after the crop of 1881 had been harvested, so that the effect of an exceptionally large crop was first felt last year. The increase in exports then was 52 per cent., while in imports it was but 8 per cent.

New Features in Time-Tables.

Some improvements in time-tables have recently been introduced by Mr. Charles Watts, Train Master of the New York Division of the Pennsylvania Railroad, who has made the time-tables for that division for a number of years—the most crowded division in the United States, probably, barring the elevated railroads. The highest train number on the last schedule is 299, and but 42 numbers are vacant, and only passenger trains are put on the schedule, freights all running on train despatcher's orders. This gives 257 passenger trains on the division. In the busy seasons as many as 200 freights may have to be dispatched in addition, so that the problem of keeping the trains out of each other's way is by no means a simple one. To avoid delays very close work must be made, and the time-table shows it by the use of half minutes in the arriving times at stations. Thus No. 2, the Chicago & New York limited express east, is due at East Newark at 7:07½ p. m., Meadows at 7:11½, and Marion at 7:13½. This we believe is the first time that fractions of a minute have been used in a time-table.

Another novel feature, which is said to be found very useful, and which Mr. Watts has copyrighted, we believe, is a "speed schedule," which gives the number of minutes required to run from either terminus to every station between them at 12 different *average* rates of speed. This reads as follows from the first few stations:

Distance.	Stations.	Distance.	Speed per hour. 60 miles. West-bound.	60 miles. East-bound.	27 miles. West-bound.	27 miles. East-bound.
....	Jersey City	89.66	...	1.30	...	3.20
2.47	Marion	87.19	3	1.27	7	3.13
3.67	Meadows	85.89	4½	1.25½	9¼	3.10
7.03	East Newark	82.63	7½	1.22½	14½	3.03½
			*	*	*	*
13.25	Elizabeth	76.41	14	1.16	30	2.48

The distances are in miles and hundredths, before the station names reading from Jersey City; after them reading from Philadelphia. The figures under "west-bound" are the hours and minutes from Jersey City; those under "east-bound," the hours and minutes from Philadelphia. The highest speed in the schedule is 60 miles per hour and the lowest 27. As the enginemen are called upon to run at various rates of speed, on occasions, on various parts of the line, this enables them to know, without calculating, just what time they have for the run between any two stations. It may be said that it is easy to calculate, but an engineman needs to keep on the alert, to look out and not in, and exercises in mental arithmetic on the footboard are not to be recommended. An extension of the table for lower speeds, applicable to freight trains, is contemplated.

Another feature of this time-table is the printing of the Sunday time-table on paper of a different color from the rest of the work, so that it can be turned to immediately.

Another improvement likely to prevent mistakes is the method of issuing supplements. When the time of one or two trains out of 250 is changed, the old time-tables are not

withdrawn, but the changed times are issued in a supplementary table. The danger is that the old time-table will be taken sometimes instead of the new one. Mr. Watts now prints his supplements on pages identical in form with those of the time-table book, and when they are given out makes sure that the tables for the old trains are cancelled by having this supplement pasted over the pages whose schedules it supersedes.

The book for this division is 4½×9¾ in., and each page has the schedules of six trains between Jersey City and Philadelphia. The change of a train may therefore be printed on this one little sheet, and made an integral part of the time-table. When the supplement is inserted the book is stamped to that effect, so that it shows on the outside that it has been properly revised.

We have before noticed that some roads have printed and provided their enginemen with diagrams showing the tracks and signals at important junctions, etc. Here we have them stitched into the time table book, so that the men are sure to have them with them. It is no slight task to learn what all the signals at these places mean, and in fact it is found that most enginemen do not learn them all; but each having occasion to act upon only a few of them with the train which he runs, he is likely to learn those thoroughly and remembers the others only that they are not for him to act upon. The result is that when an engineman has to take out a train of a class different from what he is accustomed to, which has to move on different signals, he may be at a loss what to do; and these diagrams in his pocket help him out. There are eight of these diagrams in this time-table, illustrating the position the tracks and signals respectively at Communipaw Junction, at the east end of Hackensack Bridge, at Fish House Junction, at East Newark Junction, at east end of Passaic Bridge, at Monmouth Junction, at Frankford Junction, and at Mantua Junction.

The lettering on them describing signals is made to read according to the direction in which the signals are approached. Thus the tracks run up the page from east to west, and the description of signals for west-bound trains are read with the book in its ordinary position. But to read the descriptions of signals for east-bound trains, we turn the book bottom up, and thus avoid confounding the signals.

The last page of the time-table book gives the several telegraph offices and their calls, and indicates which are block signal offices and which are closed nights and Sundays.

The Late Wm. M. Wadley.

Col. Wm. M. Wadley, for years past one of the most prominent of Southern railroad men, died suddenly of apoplexy on Aug. 10, at Saratoga Springs, where he had gone for his health. At the time of his death he was President of the Central Railroad & Banking Company of Georgia, an office which he had held about 17 years. Mr. Wadley was born 68 years ago in Brentwood, New Hampshire, and his early life was marked by the usual struggles of a young man without means or the backing of strong friends. He learned the trade of a blacksmith, and at the age of 20 or 21 he was following that vocation at Fort Pulaski near Savannah. He was first heard of in connection with the Central Railroad as a bridge contractor, and in 1849 was made Superintendent of the road. In 1859 he became connected with the New Orleans, Jackson & Great Northern road as President, but he became dissatisfied there, although he held the position for several years. After the war Colonel Wadley was elected President of the Central Railroad, to succeed Mr. R. R. Cuyler, the second President of the road. The first President was Mr. W. W. Gordon. Mr. Wadley, while in New Orleans, also became interested in the Vicksburg, Shreveport & Texas road, his investment in which was afterwards almost a total loss. During the war he served for a time as Chief Superintendent of Transportation of the Confederate Army with the rank of Colonel.

He became President of the Central at a time when, like most Southern roads, it was broken down physically and financially by the war, and it required years of incessant labor before the road was in good condition and the company again financially strong. As President he extended its influence and connections by the acquisition of the Macon & Western and the Southwestern roads, and later of the Western of Alabama, the Montgomery & Eufaula and other lines, and by the organization of the Ocean Steamship Line, probably the best equipped of all the Southern coasting lines. His latest work was the alliance with the Louisville & Nashville and the lease of the Georgia Railroad.

Col. Wadley was a man of iron will and invincible determination, and among those who knew him his word was law, and his instructions could never be deviated from nor recalled. He was a man of remarkably few words. He had few words of praise for even his best subordinates, and his silent approval was about as much as any one could ever obtain. It was a source of no small annoyance to some of his men that he gave them no words of approval, but his reply, when he made one, invariably was: "If anything does not suit me you shall know it." As a friend he was as true as steel, and when his confidence was once secured it was rarely withdrawn. He was so excellent a judge of human nature that in the selection of men for positions of trust he seldom erred, and it was one of the characteristics of his administration that defalcations were unknown in its entire history. He was married when a young man, and has seven children living—four sons and three daughters. One of his daughters is the wife of Mr. Raoul, Vice-President of the Central. For a year or more past his health has been failing, and it is very probable that he felt keenly the loss of mental and physical power which seemed inevitable, while the opposition which sprung up among the Central stockholders on the Ocean Steamship Company question was a great grief to him.

For a man of his position and opportunities, Col. Wadley may be said to have died poor. He owned a fine plantation of some 1,500 acres at Bolingbroke, near Macon, but it is understood that he left very little besides. He did not undervalue money, for he knew its uses, but his ambition seems to have been for power rather than wealth. To be the dictator of the Central and to wield its great influence was more to him than the gathering of a large fortune. It is said that he never speculated in Central stock, nor, indeed, in any other.

Col. Wadley was entirely a self-made man. Born poor, and with only a scanty early education, he was a generally well-informed man, though hardly what would be called a man of culture. Not always an attractive man externally, he had many sterling qualities, and was essentially a strong man, and he has left his mark in the railroad system of Georgia.

"Differential" Passenger Rates.

"Differential passenger rates," as they are called, were agreed upon at the recent meeting of the Joint Executive Committee for the different routes from New York to Cincinnati, Chicago and New York. Different rates by different routes have always existed, though there has rarely been any formal agreement that one road should charge less than its competitors; and for many years the practice of roads having manifest disadvantages in charging less for tickets than the most favorable route has been acquiesced in, though generally with much grumbling and declarations that it ought not to be allowed.

In nearly every case, the road charging the lowest price is considerably the longest, and the reduction is made not because the cost of the service is less by that route, for it is more, but because it is worth less; precisely as coal from one mine may be sold for $3 a ton, while that from another mine, which costs even more to get out but is of inferior quality, sells for $2. No one who has had produce or goods of different qualities to sell should need to have this explained; but some seem not to be able to understand it.

The inferior lines have insisted on competing for a share of any business on which they could, or thought they could, make some profit; and the fact that they could not make so large a profit as the roads most advantageously situated has, of course, not prevented them desiring to make all they can.

From Cincinnati to New York the distances by the several routes are:

Pennsylvania	757
Marietta & Cincinnati and B. & O.	767
N. Y., Penna. & O., and Erie	861
Bee Line, Lake Shore and N. Y. Cen.	869

Cincinnati is about as far south as Washington, and 125 miles south of the latitude of New York. But by the last-named route the passenger from New York first goes 144 miles due north, and is then further from his destination, in an air line, than when he started.

The two shortest routes are very crooked, or their advantage in distance would be much greater; but as it is the longest route is 112 miles (15 per cent.) longer than the shortest. But the longest routes have generally had most of the travel, we understand, because they have made lower rates. It is now agreed that they may make lower rates, and the rates are fixed at $18 by the Pennsylvania, which has the fastest trains and through cars; $17 by the Bee Line and by the Baltimore & Ohio, the former having a long route but through cars and sleepers, and the former taking more time for the trips, we believe, though the distance is nearly as short as the shortest. Finally, by the New York, Pennsylvania & Ohio and Erie, the fare is a dollar less—two dollars less than by the Pennsylvania. A difference of $2 is also made in the first-class fare to Chicago by way of the Erie and the Baltimore & Ohio, and from St. Louis only the Vandalia Line (Pennsylvania) is to charge the full regular rate of $24.25 to New York, the Wabash, the Indianapolis & St. Louis, and the Ohio & Mississippi tickets by way of the Baltimore & Ohio being $2 less, and the Ohio & Mississippi by way of the New York, Pennsylvania & Ohio, and the Chicago & Alton in connection with the Lake Erie & Western $3 less.

All these differences are tentative, and will be revised shortly if they do not work well. It will be noticed that the differences are made by reductions from the standard rate for the inferior routes (if this permission can be permitted), and not by additions for the superior routes. The irregular, unauthorized differences heretofore have been made largely by paying a high commission to agents, who sometimes gave none of it and sometimes most of it to their customers, according as they could make a bargain.

There will be another meeting next Tuesday to consider the passenger business, the material before the last one not being full enough to enable it to complete its work.

Webb's Compound Locomotive—A Corrected Correction.

"A Subscriber" writes: "I notice your correction on page 477 of *Gazette* of errors concerning Mr. Joy's remarks. It is curious to notice that you have a serious error in the correction itself, *i. e.*, you have erroneously substituted the words 'during the same week' for 'doing the same work.'"

Since our own efforts and those of "A Subscriber" to put the matter right we have received a letter from Mr. Webb himself, in which he says:

"In your issue of the 21st (July), you are good enough to give a summary of Mr. Joy's description of my compound locomotive. Will you kindly correct a clerical error in the figures given as the consumption per mile. It should have been 23.2 lbs. against 30 lbs., instead of 28.2.

"It may interest some of your readers to know that the engine has now made over 30,000 miles, and during the month of July she ran 7,478 miles with the Irish mail from Crewe to London and our limited Scotch mail, which is the hardest train we have to run from London to Crewe. This train is often run with fourteen of our large cars and post-office vans. Consumption for the month, 24.8 lbs. per mile."

Record of New Railroad Construction.

This number of the *Railroad Gazette* contains information of the laying of track on new railroads as follows:

Baltimore & Delta.—Extended from Towsontown, Md., to Loch Raven, 5 miles. Gauge, 3 ft.

Burlington & Northwestern.—The *Coppack Branch* is extended from Coppack, Ia., west to Fairplay, 1 mile. Gauge, 3 ft.

Central Pacific.—This company's *Northern* road is extended from Willows, Col., northward to Orland, 16 miles.

Central, of New Jersey.—The *High Bridge Branch* is extended from Port Oram, N. J., northwest to Lake Hopatcong, 5 miles.

Chicago, St. Paul, Minneapolis & Omaha.—The *Superior Branch* is completed to a point one-hundred and ten miles north of Chippewa Falls., Wis., an extension of 90 miles.

Columbus, Hocking Valley & Toledo.—The *Snow Fork Branch* is extended from Orbiston, O., to Murray, 2 miles.

Denver & Rio Grande.—Track on the *Utah Extension* is laid to Cimarron, Col., an extension of 5 miles. Gauge 3 ft.

Eastern Junction, Broad Sound Pier & Point Shirley.—Completed from Point of Pines, Mass., southeast to Ocean Spray, 2½ miles.

Galveston, Harrisburg & San Antonio.—The *El Paso Division* is extended from Eagle Pass Junction, Tex., west 40 miles; also from Lozier, Tex., east by south 19 miles.

Humeston & Shenandoah.—Track laid from Humeston, Ia., west to Grand River, 30 miles, and from Shenandoah, Ia., east to Clarinda, 21 miles.

New York, Susquehanna & Western.—Track laid from Two Bridges, N. J., westward 11 miles.

Northern Pacific.—Extended from Cabinet Landing, Idaho, eastward to Noxon, 17 miles.

Oregon Railway & Navigation Co.—Track laid from East Portland, Or., east to Sandy River, 17 miles.

Pensacola & Atlantic.—Track laid from Marianna, Fla., west to Yellow River, 28 miles. Gauge, 5 ft.

This is a total of 309½ miles of new railroad, making 5,782 miles thus far this year, against 3,180 miles reported at the corresponding time in 1881, 2,704 miles in 1880, 1,346 miles in 1879, 1,005 miles in 1878, 943 miles in 1877, 1,231 miles in 1876, 607 miles in 1875, 916 miles in 1874, 2,028 miles in 1873, and 3,485 miles in 1872.

CHICAGO RAILROAD SHIPMENTS EASTWARD for the week ending Aug. 7 and the corresponding week of the two previous years have been, in bushels:

	1880.	1881.	1882.
Tons	42,789	54,690	24,813

This year the shipments are 54½ per cent. less than last year and 42 per cent. less than in 1880, but 5,179 tons more than in the week ending July 29, this year, and the largest since the third week of June. The increase apparently is due to larger shipments billed through Chicago, as there was a slight decrease in the shipments billed at Chicago in the week ending Aug. 5 (not Aug. 7), compared with that ending July 29.

Of the shipments for the week ending Aug. 7, 2.2 per cent. were by the Chicago & Grand Trunk, 27.3 by the Michigan Central, 19.3 by the Lake Shore, 31.1 by the Fort Wayne, 9.2 by the Pan Handle, and 10.9 per cent. by the Baltimore & Ohio. Thus the share of two Vanderbilt roads was 46.6 per cent.—the largest for a long time—and that of the two Pennsylvania roads 40.3 per cent. The Chicago & Grand Trunk's share is even smaller than the week before, when it was 3.5 per cent.

The gross earnings from the shipments this week must have been about in proportion to $100 this year to $132 last and $207 in 1880.

For the week ending Aug. 12 the shipments billed at Chicago (excluding shipments from points west billed through Chicago) were 18,611 tons, against 43,167 in the corresponding week last year, and 19,269 tons for the previous week of this year. Compared with last year there was a decrease of 20,869 tons (62½ per cent.) in grain and flour, and of 3,191 tons (34 per cent.) in provisions. Last year a larger proportion of the much larger grain shipments from Chicago went by rail. This year the total grain shipments are small, and they go chiefly by lake.

Though the shipments of the week ending Aug. 12 were 658 tons less than the week before, and 698 tons less than in the week ending July 29, they were larger than in any other week since that ending June 24. All shipments, lake as well as rail, are light now, and are not likely to become very heavy until the spring wheat begins to come forward.

WASH BASINS IN PASSENGER CARS, should, one might think, be a greater attraction to passengers than any amount of ornamental painting, carving and upholstery, and less costly; though, of course, they take up valuable room, and need attention, water supply, and a considerable laundry bill for the towels. On a hot summer day, when the windows *must* be open, and on most other days, for cinders

and smoke will penetrate wherever air goes, the most luxuriously furnished passenger car is apt to become a place of torment. The parched and powdered face and hands make the traveler loathe himself, and when he arrives at an eating house or the end of his journey, he can enjoy nothing until he has washed. It is true that we have had the luxury of water and towels in sleeping and parlor cars for some years past, but hitherto, so far as we know, they have been unknown in ordinary first-class cars. Now, however, the "Bee Line" (Cleveland to Columbus, Cincinnati, Indianapolis and St. Louis by the Cleveland, Columbus, Cincinnati & Indianapolis and Indianapolis & St. Louis) advertises that it has put on its train a stock of new coaches, "which cannot be excelled for elegance and comfort," and mentions among their attractions, along with solid mahogany finish, plate-glass windows, and double blinds, this supreme one: "In one end of the coach, in addition to the ladies' and gentlemen's toilet rooms, the company have placed a wash-room, with marble basin and large plate-glass mirror, in which at all times patrons of the line will find towels and soap, furnished them by the company free of cost." For this wash-closet let us be duly thankful, and may others go and do likewise. Decorative art, and even easy seats, have little attraction for a man, much less for a lady, conscious of a grimy face. Washed, we may relish all these things; unwashed we feel unsuited to our surroundings and as if our proper place were in a cattle car.

THE VALUES OF JUNE EXPORTS AND IMPORTS have recently been reported by the Bureau of Statistics. The value of the exports of domestic merchandise from the United States in the fiscal year ending with June last was $150,852,000 (17 per cent.) less than the year before, and $90,872,416 (6 per cent.) less than in 1879–80, but larger than in any previous year. The imports for the last year were $81,958,700 (12¾ per cent.) more than the year before, and more than in any previous year. The excess of exports over imports last year was $25,700,000, against $259,700,000 the year before and $167,700,000 in 1879–80. Since 1875 the excess has not been so small, but in 1874–75 and in the 10 years from 1863 to 1873, inclusive, there was an excess of imports over exports.

Of the $150,852,000 decrease in exports, $81,089,000 was in the half-year from January to June; and in this half-year there was an increase of $54,414,000 in the imports; in the other half-year, with the smaller decrease of $69,963,000 in the exports, there was the much smaller increase of $27,544,700 in the imports, on which the decrease in exports seems to have had no effect. Of the exports 45⅓ per cent. was in the last half-year; of the imports, 53⅔ per cent.

The Southern ports, including the whole coast from the Chesapeake to the Rio Grande, exported goods to the value of $6,406,777, or 13 per cent. of the whole, in June; but they imported but $1,183,003, which is 1.9 per cent. of the whole. June is an unfavorable month for the Southern ports, as the cotton exports are usually nearly completed before. New York and Boston together had 60.6 per cent. of the exports and 76.4 per cent of the imports—more than usual. Philadelphia and Baltimore together had 10 per cent. of the exports and 8 per cent. of the imports—much below their usual rank as exporters.

WATER RATES have fallen a little all around. Shipments of grain have fallen off, and there are again more vessels than cargoes, bringing down the rate on corn to 1¾ cents and then 2 cents per bushel from Chicago to Buffalo, which, it is said, is the least the steam vessels will take. Canal rates are down ¼ cent, to 4¾ cents a bushel for corn and 5¼ for wheat from Buffalo to New York. Ocean rates have fallen more, to 4d. per bushel for grain by steam from New York to Liverpool. Charters for sail vessels to carry grain from New York, Philadelphia and Baltimore to Cork for orders have been made at 6s. to 6s. 4½d. per quarter. Until recently there have been very few charters of sailing vessels for grain this year, the steamers taking nearly all the little that was exported. The resumption of exports makes a demand for vessels, and the rates are not particularly low.

Schrabetz's Apparatus for Bending Steel Rails.

Mr. A. Marnier contributes to the *Révue Industrielle* of Paris, a description and illustrations of a novel rail-bending apparatus, which we herewith translate and copy for the benefit of the American railroad men:

Since the use of steel rails has become common, it has been necessary to devise new tools for bending the rails to be laid on curves, the old methods of bending by hammering or by dropping on bearings not being applicable to steel.

The cylinder machines are inconvenient, even when mounted on a truck; their weight makes them difficult to manage and they block up the track. Moreover, they work quite slowly, while requiring a great deal of power.

The apparatus designed by Emile Schrabetz overcomes all these difficulties; it has stood the test of several years' service, during which it has gradually been perfected.

Before describing the apparatus and showing how it works it will be useful to give attention to the conditions which such apparatus should satisfy.

All its parts should be light, that they may be easily transported and handled.

It should be possible to set it up rapidly anywhere, that it may not be necessary to transport the rails which are to be curved.

Finally, two workmen should be enough for the whole work—transportation, setting up in place and bending.

The following account of the Schrabetz apparatus has been furnished by Mr. Bailly.

At the ends of the rail to be bent are fastened bars, to which are fixed solidly supports placed against the side of the rail.

To avoid slipping against the rail these supports are fastened to the end of the rail by means of pieces which at the same time unite the bars to the side supports.

Fig 1.

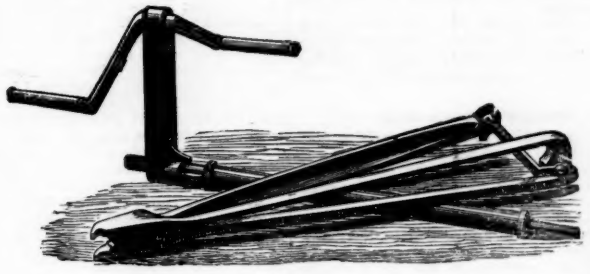

Fig. 2.

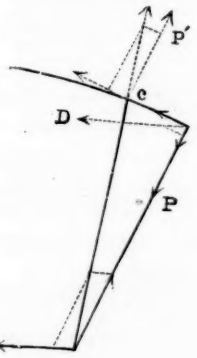

Fig 3.

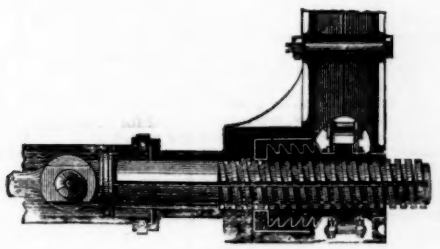

Fig. 4.

SCHRABETZ'S APPARATUS FOR BENDING STEEL RAILS.

These three pieces thus constitute at each extremity of the rail a traction frame (figs. 1 and 2) in the form of a triangle, the apexes of which are joined by a rod, with a mechanism by which these apexes *b* can be drawn together with great force, causing the rail to bend.

Of course the flexure of the rail must exceed the limit of elasticity of the material.

By the power exercised at each end of the rail, we produce the forces *P* and *P'*. (fig. 3) equal and parallel, but in opposite directions, and the force *D Z*.

In consequence of the application of the forces *P P'*, the rail will be curved regularly between the points *c c*; that is, this curve will assume the form of a portion of the circumference of a circle, with the exception of a deviation resulting from the effect of the force *D*.

Nevertheless, a scarcely appreciable deviation results, for this case, from the approximate equation of the curve of flexion.

Trials made with rails of average length, carried to a radius of 65½ ft., with traction triangles of selected dimensions, have demonstrated that the deviation produced in the ordinates is only a few millimetres, and that the curve obtained is equivalent to a circle and is of permanent duration.

The fact that the curve of the rail is circular proves sufficiently that, by reason of the uniformity of the transverse section of the rail, the tension per square millimetre is the same the whole length of the rail.

It follows, also, that the tension does not exceed the limit of traction just necessary to obtain the desired curve.

As the mechanism makes it possible to exert an effort of 80 kilograms per square millimetre [=51,612 lbs. per square inch], it answers all requirements for the stiffest rails.

The accompanying engraving of the apparatus as a whole, and of its details, shows the arrangement of its different parts.

To the traction triangle placed on the right side is attached a jack, fastened by a key to the two pivots, in the position represented; the jack thus transmits the pressure upon the triangle. Pivots and keys enter into corresponding grooves.

A notch at the apex of the other traction triangle received the link of a rod attached to the jack at its opposite extremity.

The jack consists of a screw carrying a toothed nut; this cog-wheel is worked by a Gall chain, mounted on a windlass which is turned by cranks. The nut is fixed in its socket by keying.

When the cranks are turned, the screw draws the chain into the tube of the jack and draws together the extremities of the two triangles, which compels the rail to bend.

The mechanism is perfectly protected from dust. The end of the screw is provided with a piston covered with leather, which slides in the cylinder.

The number of turns of the crank of the jack corresponds to the radius of curve to be given to the rail which is to be bent.

It therefore is sufficient to know what should be the number of turns (the rail being straight and the chain stretched) for each radius, according to the length of the rails.

For bending several straight rails, from the largest to the smallest, for different degrees of curvature, it is easy to draw up a table as a guide to the workman, showing the number of crank turns corresponding to each degree of curvature.

New workmen who have never used the apparatus can manage the whole operation, setting up and bending, in four minutes.

The apparatus consists of:

2 traction triangles, weighing each	100 lbs.
1 jack	68 "
2 chains of variable length, about	48 "
Or, in all, about	316 lbs.

The Schrabetz apparatus is therefore readily handled and can be transported easily to all points on the road.

General Railroad News.

MEETINGS AND ANNOUNCEMENTS.

Meetings.

Meetings will be held as follows:

Boston & New York Air Line, special meeting, in Middletown, Conn., Sept. 13, to vote on the proposed lease of the road to the New York, New Haven & Hartford Company.

Rochester & Pittsburgh, special meeting, at the company's office in New York city, Aug. 28, at 2 p. m., to vote upon the question of issuing $5,000,000 additional stock.

New York, New Haven & Hartford, special meeting, in New Haven, Conn., Sept. 6, to vote on the question of leasing the Boston & New York Air Line road.

Railroad Conventions.

The *American Institute of Mining Engineers* will hold its summer meeting in Denver, Col., beginning Aug. 19.

The *Railway Traveling Auditors' Association* will hold an adjourned meeting at the Louisville Hotel, Louisville, Ky., on Wednesday, Sept. 13, at 11 a. m. Members of the Association are requested to attend. All others desiring to become members are cordially invited on that occasion.

The *National Association of General Passenger & Ticket Agents* will hold its next meeting, pursuant to adjournment, in Montreal, Sept. 19.

The *Master Car-Painters' Association* will hold its annual convention in Chicago, beginning Sept. 20.

The *Master Car-Builders' Association* will meet in convention, pursuant to adjournment, on Oct. 10, at Niagara Falls.

The *American Society of Mechanical Engineers* will hold its stated annual meeting in New York, Nov. 2. Arrangements for the meeting will be announced hereafter.

Dividends.

Dividends have been declared as follows:

Chicago & Alton, 1 per cent., semi-annual, payable Sept. 1. Transfer books closed Aug. 16.

Richmond & Danville, 2 per cent., quarterly, payable Aug. 15.

Sandersville & Tennille, 7 per cent., yearly, payable Sept. 10.

Foreclosure Sales.

The *Cincinnati & Westwood* road will be offered at public sale in Cincinnati, Aug. 30. The road is a narrow-gauge suburban line running out of Cincinnati, and is 5½ miles long. Its funded debt is reported at $40,000.

The *Chicago, Saginaw & Canada* road will be sold at Grand Rapids, Mich., Oct. 2, under a decree of foreclosure. The sale will include all the property of the company, and will be made subject to the rights of the lessee now in possession, which rights are to be adjudicated and decreed by the Court summarily, and upon petition of the party claiming such right of possession under foreclosure sale. The terms of sale are $50,000 cash and the balance in 90 days. The road is completed from St. Louis, Mich., west to Lake View, 38 miles, and has been the subject of much litigation. The latest report gives the funded debt at $195,000 and the floating debt at $428,000. It has been for some time operated by John A. Elwell under a lease from the Receiver.

Mail Service Extensions.

Mail service has been ordered over new railroad lines as follows:

Chippewa Valley & Superior, service ordered from Eau Claire, Wis., to Wabasha, Minn., 48 miles.

Chicago & Northwestern, service extended from Watertown, Dak., to Clark Centre, 31 miles.

Wisconsin & Michigan (operated by Milwaukee & Northern), service ordered from Ft. Howard, Wis., to Eldred, 27 miles, to begin Aug. 15.

Railroad Traveling & Passenger Agents' Associations.

This Association met in Montreal, Aug. 9. After a short session, in which the usual routine business was transacted, the convention adjourned, and the members devoted the rest of the day to sight-seeing.

On the following day it was decided to dissolve the old Association and form a new one, the name adopted being the International Association of Traveling Agents. After completing the organization of the new Association, the convention adjourned.

Master Car-Painters' Association.

The following circular in relation to the approaching convention is issued by Mr. McKeon, the Secretary:

The Thirteenth Annual Convention of the Master Car-Painters' Association will be held at Chicago, Ill., commencing on Wednesday, Sept. 20, at 10 a. m.

The Palmer House has been selected as the headquarters of the Association; rates $2.50 and $3 per day to delegates, with the use of club rooms in which to hold the convention.

Rooms may be engaged by applying to the clerk of the hotel five days previous to the meeting.

A cordial invitation is given to master car and locomotive painters throughout the United States and Canada to attend the convention and participate in the discussions which are of general interest to all master painters.

The annexed subjects have been selected as bearing directly on the work of the car and locomotive painter; but a few have been chosen, believing that each question introduced is worthy of a thorough discussion, and that all present should have opportunity given them to express their views. We desire that all delegates prepare themselves to give the convention the benefit of their practical experience on each of the subjects named below, when introduced for discussion by the several committees whose names are attached.

Any member of a committee unable to attend will send his report to the Secretary five days previous to the meeting.

1. What is the Best Method of Filling and Finishing Light Colored Woods so as to Preserve the Color in its Natural State as Much as Possible?—J. C. Stout, Union Pacific, Armstrong, Kan.

2. When the Paint on a Panel is in a Condition to Blister, why does it not Blister all over in place of being Limited to a few Spots, which is the usual case?—George Forby, Missouri Pacific, St. Louis, Mo.; Wm. Sharp, Lake Shore & Michigan Southern, Adrian, Mich.

3. Surface Painting.—An essay, by C. E. Felch, Southeastern Railway, Sutton, Quebec.

4. What Advantage is there, if any, in Striping, Lettering and Decorating on Bare Color, instead of Giving a Coat of Varnish Previously?—M. W. Stines, Barney & Smith Manufacturing Co., Dayton, O.

5. What are the Benefits resulting from the use of Ready-Mixed or Prepared Ground Colors in the Railway Paint Shop?—John H. Will, New York Central & Hudson River, Morrisania, N. Y.

6. The most approved Method of Keeping Passenger Cars Clean, and the Best Material for Washing them on the Outside When in Service, with the Least Injury to the Varnish.—D. D. Robertson, Michigan Central, Detroit, Mich.

7. Practical Thoughts on Locomotive Painting.—John S. Atwater, Hinckley Locomotive Works, Boston, Mass.

8. Wherein lies the Benefit of Putting on Two or Three Coats of Finishing Varnish on a Coach Body within 24 or 36 hours of each other, in place of giving Each Coat a Proper Time to Dry (known by some as the Repeating Process.—Frank Fisk, Columbus, Hocking Valley & Toledo, Columbus, O.; A. P. Sweet, Detroit, Lansing & Northern, Ionia, Mich.

9. The most approved Methods Employed for Removing Old Paint from Passenger Cars, also for Removing Cracked or Decayed Varnish from the Inside Finish of the Car, with the Least Expense and Damage to the Surface.—J. C. Congdon, Northern Pacific, Brainerd, Minn.; R. McKeon, New York, Pennsylvania & Ohio, Kent, Ohio.

In addition to the above subjects, some time will be given to "Plain Talk on Various Topics" pertaining to the paint shop. The following items, with others that may be suggested, will come under this head:

The Best Material and Method of Making Stencils for Freight Car Lettering or Coach Decoration.

Economy in the Paint Shop, or the best plan of Utilizing Refuse Paint and Paint Skins.

Have the Pigments Employed, or the Color of the Ground Coats any tendency no retain or destroy the Color of Vermilion?

American Society of Mechanical Engineers

The stated annual meeting of this Society will take place on the first Thursday in November next (Nov. 2), at 10 a. m. for election of officers, legislative and general business, and the reading of papers.

The meeting in joint convention with the Society of Civil Engineers and the Institute of Mining Engineers to listen to the report of the Holley Memorial Committee and the address of Dr. Raymond, is likely to be deferred to so late a date that, in the judgment of the Council, it is inadvisable to attempt holding a business meeting at that time.

Members are advised to prepare their papers and other communications to the Society with a view to their presentation at the November meeting. The Secretary should be notified promptly of their character and extent, in order that they may take a place in the programme. They should be forwarded in ample time for reference to the Publication Committee.

The Nominating Committee, intrusted with the nomination of officers for vacancies occurring in November, is appointed, and suggestions or communications for that committee may be forwarded through the Secretary, under cover.

Members having friends who desire to become members in time to take part in the business of the annual meeting, should see that their applications are made in correct form and promptly forwarded to the Secretary, who will supply blanks on application. If not received at least one month before the meeting, they cannot pass the council in time.

Members who have not received diplomas, cards of introduction or badges, can obtain them by applying to the Secretary, if not in arrears.

The Committee on Regular Meetings will, in consultation with the Secretary, arrange a programme for the meeting and appoint a Local Committee, and will receive communications addressed through the Secretary from New York members and others, who may be able to assist in making the occasion a pleasant one.

Further notice will be given when the arrangements can be more definitely announced, and the Secretary's programme will be issued immediately before the meeting, stating specifically the place and time for all exercises and excursions.

Western Association, General Passenger & Ticket Agents.

A meeting of the Western Association of General Passenger and Ticket Agents was held in Detroit, Aug. 9.

The following roads were represented: Chicago, Burlington & Quincy; Burlington & Missouri River; Canada Southern; Chicago, Milwaukee & St. Paul; Cincinnati, Indianapolis, St. Louis & Chicago; Cincinnati, Hamilton & Dayton; Cincinnati, Sandusky & Cleveland; Cleveland, Columbus, Cincinnati & Indianapolis; Columbus, Hocking Valley & Toledo; Detroit, Lansing & Northern; Ft. Wayne & Jackson; Hannibal & St. Joseph; Indiana, Bloomington & Western; Kansas City, Ft. Scott & Gulf; Little Rock & Ft. Smith; Louisville & Nashville; Marietta & Cincinnati; Michigan Central; Missouri Pacific; New York, Pennsylvania & Ohio; Northern Pacific; Ohio & Mississippi; Pennsylvania Company; Peoria, Decatur & Evansville; Pittsburg & Lake Erie; Vandalia Line, and the Wabash, St. Louis & Pacific. President A. J. Smith occupied the chair and Mr. George H. Daniels acted as Secretary.

The first subject taken up and discussed was the establishment of land points on the various land-grant roads, to which explorers' tickets can be sold. The following official list of land points was agreed upon:

Atchison, Topeka & Santa Fe.—Florence, Kan., round trip fare from Kansas City, $5.

Chicago, Milwaukee & St. Paul.—Aberdeen, Dak.; Flandreau, Dak.; Mitchell, Dak.; Ortonville, Minn.; Pipestone, Minn.; and Spencer, Ia.

Chicago & Northwestern.—Aberdeen, Dak., round trip from Chicago, $25.90; Battle Creek, Ia., round trip from Chicago, $17.80; Huron, Dak., round trip from Chicago, $24.30; Sioux Rapids, Ia., round trip from Chicago, $17.50; Tracy, Minn., $21; Watertown, Dak., round trip from Chicago, $24.70.

Chicago, Rock Island & Pacific.—Atlantic, Ia. Chicago.

Chicago, St. Paul, Minneapolis & Omaha.—Rock Rapids, Ia.; Salem, Dak.; Worthington, Minn.

Galveston, Harrisburg & San Antonio.—Eagle Pass, Tex.; San Antonio, Tex.

Houston & Texas Central.—Waco, Tex.; Albany, Tex.

Illinois Central.—Le Mars, Ia.

Kansas City, Ft. Scott & Gulf.—Baxter Springs, Kan.; South Greenfield, Mo.; Cherryvale, Kan. Round trip from Kansas City to those points, $5.

Kansas City, Lawrence & Southern Kansas.—Cherryvale, Kan.

Little Rock & Ft. Smith.—Ozark, Ark.

Missouri Pacific.—Council Grove, Kan.; Kirwin, Kan.; Denison, Tex.; Waco, Tex.; San Antonio, Tex.; Palestine, Tex.

Northern Pacific.—Jamestown, Dak.; Miles City, Mon.

Sioux City & Pacific.—Neligh, Neb.

St. Paul, Minneapolis & Manitoba.—Crookston, Minn.; Grand Forks, Dak.

St. Louis & San Francisco.—Fredonia, Kan., round trip from St. Louis, $20; Neosho, Mo., round trip from St. Louis, $15.

St. Louis, Ft. Scott & Wichita.—Yates Centre, Kan., round trip from Kansas City, $5.

Union Pacific.—Ellis, Kan., Columbus, Neb., Lincoln, Neb., Grand Island, Neb., Holton, Kas., round trip from Leavenworth, $2.80.

Wisconsin Central.—Medford, Wis., round trip from Milwaukee, $13.35.

The committee of seven appointed at the previous meeting to look into the baggage question reported that the general managers deem it inexpedient to consider this matter at present.

The question of adoping a uniform rate regarding excess baggage, which shall apply locally as well as on through business, was discussed and finally laid on the table.

It was decided not to check baggage on a limited ticket to a point short of the destination of said ticket.

The subject of abolishing the system of personally conducted excursions was laid on the table, and the subject "Will each road protect its connections from unfair discriminations in the event of their declining to pay commissions?" was also laid over.

The next meeting of the Association will be at Louisville, Ky.

ELECTIONS AND APPOINTMENTS.

Associated Railroads of Virginia and the Carolinas.—Mr. E. G. Ghio is appointed Auditor of Freight and Passenger Accounts, to date from Aug. 1. He was recently on the Seaboard & Roanoke road.

Boston, Hoosac Tunnel & Western.—At the annual meeting in Saratoga, N. Y., Aug. 16, the following directors were chosen: Elisha Atkins, Boston; Ginery Twichell, Brookline, Mass.; Estes Howe, Cambridge, Mass.; Frederick L. Ames, North Easton, Mass.; David B. Hatch, Brooklyn, Conn.; W. V. Reynolds, Schaghticoke, N. Y.; Josiah Case, Vernon, N. Y.; George J. Forrest, W. H. Hollister, August Kountze, Cyrus J. Lawrence, Lewis May, Robert Minturn, New York.

Boston, Revere Beach & Lynn.—The position of Superintendent of this road has been abolished and in its place two offices have been established. Mr. Charles A. Hammond is Master of Construction and Maintenance, and Mr. L. C. Legro Master of Transportation.

Mr. Charles A. Hammond is also Purchasing Agent of the road.

Chesapeake & Ohio.—Mr. E. F. Kelley has been appointed Assistant General Freight Agent, with office in Richmond, Va.

Mr. W. P. Walker has been appointed Contracting Freight Agent, with office at No. 171 Walnut street, Cincinnati.

Chicago, Milwaukee & St. Paul.—A circular from this company announces the following new appointments:

"Mr. H. C. Atkins has been appointed Assistant General Superintendent, with office at Milwaukee, and will have charge of the following divisions: Chicago & Council Bluffs (from Chicago to Council Bluffs), La Crosse, Prairie du Chien, Wisconsin Valley and Mineral Point.

"Mr. D. A. Olin has been appointed Assistant General Superintendent, with office at Racine, and will have charge of the Racine & Southwestern divisions, composed of the following lines: Rockton to Rockford; Elkhorn to Eagle; Savanna to Rock Island; Elk River Junction to Clinton; Davenport to Jackson Junction; Elkridge to Maquoketa, and Palo Alto to Farley."

Cleveland, Youngstown & Pittsburgh.—At a meeting held in Alliance, O., Aug. 12, the following directors were chosen: A. W. Coates, Wm. E. Lewis, Alliance, O.; Wm. A. Lynch, Canton, O.; J. C. M. Floyd, Robert Martin, Steubenville, O.; W. R. Bergholtz, T. T. Buckley, Henry W. Ford, L. W. Lawrence, New York. The board elected Henry W. Ford President; W. R. Bergholtz, Vice-President; Thomas Nast, Secretary; T. T. Buckley, Treasurer.

Des Moines & Kansas City.—At the recent annual meeting the following directors were chosen: M. T. V. Bowman, Charles J. Jones, W. M. Jones, J. W. Mills, Des Moines, Ia.; F. E. Bowen, T. B. Eldredge, George C. Lyman, New York. The directors elected W. M. Jones, President; Titus B. Eldredge, Vice-President; Chas. J. Jones, Secretary and Treasurer.

Galveston, Houston & Henderson.—Mr. Edward Barrington is now Resident Engineer, with office in Galveston, Texas. He was formerly on the Texas-Mexican road, in charge of the location of the line from Rockport to San Antonio.

Green Bay, Steven's Point & Northern..—This company has elected John I. Blair, President; Timothy Case, Vice-President and Local Treasurer; W. J. Abrams, Secretary; Theodore Sturgis, Treasurer and Assistant Secretary. The road is leased to the Green Bay, Winona & St. Paul.

International Association of Traveling Agents.—The officers chosen at the convention in Montreal last week are: President, J. S. Welch, Cincinnati; Vice-President, J. H. Griffin, Savannah.

New Brunswick.—At the annual meeting recently the following directors were chosen: Isaac Burpee, St. John, N. B.; E. R. Burpee, Gibson, N. B.; George W. Campbell, T. W. Ritchie, D. A. Smith, George Stephen, Montreal; John S. Kennedy, O. H. Northcote, Samuel Thorne, J. Kennedy Todd, New York; Lord Elphinstone, Scotland. The board re-elected Samuel Thorne President; Isaac Burpee, Vice-President; E. R. Burpee, Managing Director; Alfred Seely, Secretary and Treasurer.

New York, Chicago & St. Louis.—Mr. S. E. Williamson has been appointed Solicitor of this company. He is now a Judge of the Court of Common Pleas of Cuyahoga County, O., and has a high reputation as a lawyer.

Mr. Ross Kells has been appointed Superintendent of Motive Power and Machinery, with office in Cleveland, O. Mr. Kells has been for 24 years on the Pittsburgh, Cincinnati & St. Louis road.

New York & Council Bluffs.—The directors of this new company are: J. F. Baldwin, W. C. James, W. F. Sapp, E. L. Shugart, J. W. Rodefor, J. T. Hart, Council Bluffs, Ia.; Isaac B. Hymer, Fort Wayne, Ind. The officers are: Isaac B. Hymer, President; T. Baldwin, First Vice-President; W. C. James, Second Vice-President; J. Lyman, Secretary; C. Baldwin, Treasurer.

New York & New England.—The following circular from General Manager Felton is dated Boston, Aug. 7: "Hereafter the General Passenger Agent will have charge of the railroad train mail service of this company. Superintendents will see that agents, conductors, baggage-masters and others conform to such instructions as he may issue from time to time in regard thereto."

Portsmouth & Dover.—This company has elected Frank Jones President; Calvin Paige, Clerk; George L. Treadwell, Treasurer. The road is leased to the Eastern Company.

Richmond & Danville.—Mr. W. A. Walden has been appointed Acting Master Mechanic of the Atlanta & Charlotte Air Line Division in place of C. D. Wall, resigned. Mr. Walden was recently Road Foreman of Engines.

St. Johnsbury & Lake Champlain.—The full list of directors chosen last week is as follows: Horace Fairbanks, Franklin Fairbanks, Wm. P. Fairbanks, St. Johnsbury, Vt.; George W. Hendee, Morristown, Vt.; Bradley Barlow, St. Albans, Vt.; A. B. Jewett, Swanton, Vt.; Thomas Coggeshall, Newport, R. I.; A. B. Harris, Springfield, Mass.; Henry D. Hyde, Boston.

St. Paul, Minneapolis & Manitoba.—Mr. S. R. Stimson is appointed General Superintendent of the lines of this company, with office at St. Paul, Minn. He will have charge of operating and maintaining the road, and his instructions in regard to road, train, station, or other service will be respected.

Sandersville & Tennille.—At the annual meeting in Sandersville, Ga., recently, the following directors were chosen: D. B. Evans, J. N. Gilmore, H. N. Hollifield, A. Mathis, M. Newman, C. R. Pringle, R. L. Warthen. The board elected C. R. Pringle President; H. N. Hollifield, Secretary; Jared I. Irwin, Superintendent; G. D. Warthen, Treasurer; A. A. Fambro, Engineer; J. B. Wicker, Assistant Agent.

Virginia Midland.—The following appointments are announced for this road: Traffic Manager, Sol. Haas; Acting General Freight Agent, James H. Drake; General Passenger Agent, Mercer Slaughter; Assistant General Freight and Ticket Agent, F. T. Hawks.

Western & Atlantic.—Master Car-Builder Wm. A. Gramling having resigned, Mr. John H. Flynn, Master Mechanic, will hereafter have charge of the Car Department, in addition to his former duties.

PERSONAL.

—Mr. Wm. A. Gramling, Master Car-Builder of the Western & Atlantic Railroad for many years, has resigned his position.

—Mr. C. D. Wall, Master Mechanic of the Atlanta & Charlotte Air Line Division of the Richmond & Danville road, has resigned his position.

—Mr. S. Walton is now engaged in a contract on the East River Division of the New River Branch of the Norfolk & Western road, at Falls Mills, Va.

—Gen. E. P. Alexander, late Vice-President of the Louisville & Nashville, is prominently named as successor to the late Wm. M. Wadley as President of the Central Railroad Company, of Georgia.

—Mr. John H. Coffing died at Van Deusenville, Mass., Aug. 14, aged 71 years. He was for many years an iron manufacturer, and was President of the Stockbridge & Pittsfield Railroad Company.

—Mr. Henry Mather Smith, Assistant General Freight Agent of the Burlington & Missouri River Division of the Chicago, Burlington & Quincy, died in Omaha, Neb., Aug. 14, of congestion of the brain.

—Mr. Ross Kells, for a long time Master Mechanic of the Pittsburgh & Columbus Division of the Pittsburgh, Cincinnati & St. Louis road, has resigned to accept a position on the New York, Chicago & St. Louis road.

—Mr. Wm. G. Raoul is mentioned as a probable successor to the presidency of the Central Railroad Company, of Georgia. He has been on the road for many years, serving as Road-master, Superintendent and Vice-President. He is a son-in-law of the late Mr. Wadley.

—C. A. Wetton, Auditor of the Des Moines & Ft. Dodge Railroad, committed suicide by shooting himself at Princeton, Ill., Aug. 14, to avoid arrest on a charge of bigamy. He married a young lady in Princeton last April and took her to Des Moines to live, when he already had a wife and children in New York.

—Gen. Thomas L. Rosser, formerly Chief Engineer of the Canadian Pacific Railway, was some months ago arrested on a charge of retaining or making away with maps and papers belonging to the company. When the case came to trial, Gen. Rosser was promptly acquitted, and he has now brought suit to recover damages for malicious prosecution.

—Gen. James H. Ledlie died at New Brighton, N. Y., Aug. 15, aged 50. He was born in Utica, N. Y., graduated from Union College, and was soon after made a division engineer on the Erie Canal. He served during the war, rising to the rank of Brigadier General. Later he had a heavy contract for building bridges, trestles and snow-sheds on the Union Pacific. He was afterwards interested in Southern roads and a few years ago went to Nevada, where he built the Nevada Central road. At the time of his death he was Chief Engineer of the Nevada Southern and of the Santa Rosa & Sonoma road; Vice-President of the Baltimore, Cincinnati & Western and a director of the Indian River road in Florida.

—Mr. Jesse Hoyt died at his residence in New York, Aug. 14, aged 67 years. He was born and always lived in that city, and for many years was one of its leading grain merchants, succeeding his father in business, and finally retiring about a year ago. Mr. Hoyt accumulated a large fortune in business, and some 30 years ago began to invest in Western lands and railroad property. He bought largely in Michigan, and owned nearly all the land upon which the city of East Saginaw now stands. He was one of the projectors of the Flint & Pere Marquette road, was always a director, and for some years past President of the Company. He was also a director and large owner of the Winona & St. Peter road, which he afterward sold to the Chicago & Northwestern. He was a director of the Milwaukee & Northern, the Wisconsin & Michigan and the Ontonagon & Brule River companies. He was owner or part owner in a number of grain elevators at various points. A few years ago he became interested in the Chesapeake & Ohio road, and was a director of that company also.

TRAFFIC AND EARNINGS.

Railroad Earnings.

Earnings for various periods are reported as follows :

	1882.	1881.	Inc. or Dec.		P. c.
Seven months ending July 31 :					
Cairo & St. Louis..	$204,158	$239,934	D.	$35,776	14.9
Flint & Pere Marq.	1,991,105	1,041.188	I.	157,917	15.2
Marq., Hou. & Ont.	678,771	427,976	I.	250,795	58.6
Norfolk & Western	1,204.141	1,168,504	I.	35,637	3,0
St. Paul & Duluth..	517,351	367,014	I.	150,337	40.9
Six months ending June 30 :					
Bur., Ced.Rap.& No.	$1,291,399	$997,032	I.	$294,367	29.8
Net earnings. ...	424,147	242,266	I.	181,941	75.2
Ches. & Ohio.....	1,399,118	1,296,126	I.	102,992	8.0
Net earnings.....	335,228	160,474	I.	174,654	109.2
Des M. & Ft. Dodge	172.059	156,086	I.	15,973	10.2
Net earnings.....	59,810	*329	...	...	....
Flint & Pere Marq.	1,051,643	903,548	I.	148,095	16.4
Net earnings.....	384,068	260,743	I.	124,225	47.6
Mil., L.Sh. & West.	422,545	251,934	I.	170,611	67.7
Net earnings.....	150,759	51,463	I.	99.296	19.4
Union Pacific.....	13,769,491	12,867,636	I.	901,855	7.0
Net earnings.....	5,989,646	5,260,825	I.	728,791	13.8
Month of June :					
Marq., Hou. & Ont.	1,185.780	$139,689	I.	$46.091	32.9
Net earnings	127,768	65,686	I.	62,082	94.2
Month of July :					
Cairo & St. Louis..	$34,140	$32.636	I.	$1,504	4.5
Flint. & Pere Marq.	147,462	137,640	I.	9,822	1.7
L tl: R. & Ft. Sm.	96,100	32,236	D.	6,136	19.2
Lou., N A. & Chi...	119,193	82,535	D.	36,658	44.1
Marq., Hou. & Ont.	194,979	154,755	I.	40.224	26.0
Norfolk & West....	179,183	173,375	I.	5,808	3 3
St Paul & Duluth	96,954	71,412	I.	25,542	36.0
First week in August:					
Chi. & East. Ill....	$39,068	$37.420	I.	$1,648	4.5
Cal. & Gd. Trunk..	37,041	29,844	I.	7,197	24.0
Denver & R. G....	122,143	126,263	D.	4,120	3.3
Northern Pacific...	179,647	98,020	I.	81,627	81.3
Wabash, St. L. & P.	318,042	322,480	D.	4,438	1.4
Second week in August:					
Denver & R. G....	$113,785	$128,630	D.	$14,845	11.5

* Deficit.

Grain Movement.

For the week ending Aug. 5 receipts and shipments o grain of all kinds at the eight reporting Northwestern markets and receipts at the seven Atlantic ports have been, in bushels, for the past six years :

Year.	—Northwestern shipments.— Northwestern receipts.	Total.	By rail.	P. c. by rail.	Atlantic receipts.
1877....	4,940,613	4,285,095	950,575	22.2	3,525,053
1878....	6,353,446	4,872,921	1,449,950	30.8	6,153,764
1879....	6,271,648	5,588,755	1,870,352	33.3	8,402,315
1880....	7,262,397	6,528,553	2,125,251	32.6	8,236,866
1881....	6,052,700	4,952,203	2,213,188	44.7	5,549,732
1882 ...	5,774,769	5,129,111	2,217,259	43.2	5,658,659

The receipts of the Northwestern markets are smaller than in any corresponding week since 1877, but only 4.6 per cent. less than last year. They were 1,430,000 bushels less than the week before, but with that exception were the largest of the year. The receipts of wheat were larger than in the corresponding week of any previous year, but the corn receipts were 60 per cent. less than last year.

The shipments of these markets were exceeded in the corresponding weeks of 1879 and 1880, but in no other years. They were 8 per cent. more than the week before, and were the largest since the middle of last September. Nearly two thirds of the shipments were wheat; last year only a quarter were wheat, while one-half were corn then and but one-fifth now. The rail-shipments were larger than in the corresponding week of any previous year, a trifle larger than last year even, when the rate was 40 per cent. lower. The receipts from these rail-shipments must have been about at the rate of $137 this year to $100 last. The benefit of them is received chiefly by the roads south of the latitude of Chicago.

The Mississippi River shipments for the week were 363,221 bushels, or 7.1 per cent. of the whole. The river shipments for the three weeks since July 15 have been about equal to the shipments for the three months previous.

The Atlantic receipts were a little more than in the corresponding week of last year, but much less than in 1880 and 1881. They were a quarter more than the week before, and the largest since the middle of September, and with two exceptions the largest since July of last year. More than nine-tenths of these Atlantic receipts were wheat, of which more was received than in any year before except 1879. On the other hand the corn receipts were not one-tenth what they were last year.

Of the Northwestern receipts for the week Chicago had 46.6 per cent., St. Louis 25.9, Toledo 17.6, Peoria 2.8, Detroit 2.9, Milwaukee 0.2, Cleveland 1.8, and Duluth 0.3 per cent. The decrease from the previous week was chiefly at St. Louis and Chicago. The receipts at Milwaukee are smaller than in any week before since 1879, and doubtless for several years previous.

Of the Atlantic receipts New York had 34.8 per cent., Baltimore 28.7, Montreal 12.1, Philadelphia, 10.4, New Orleans 7.7, Boston 6.2, and Portland 0.1 per cent. There being a total gain of 1,124.000 bushels over the previous week. Baltimore gained 427,000, Montreal 326,000, New York 138,000, Philadelphia, 108,000, and New Orleans 104,000. Though the amount of New York's receipts is the largest of the year, it has but once before had so small a percentage of the total. During the first seven months of the year New York and Boston together had 67.4 per cent. of the total; Philadelphia and Baltimore but 19.5 per cent.; this last week the two latter have 39.1 per cent. against New York's 34.8. This may be expected to continue for some time yet.

Of the exports for this week, New York had 55.7, Baltimore 26.1, Montreal 88, Philadelphia, 5.1, New Orleans 0.2, and Boston 1.5 per cent.

For the week ending Aug. 9 the Atlantic exports were 3,452,829 bushels of grain and 83,441 barrels of flour this year, against 4,597,608 bushels of grain and 75,094 barrels of flour last year, and 6,495,959 bushels and 71,183 barrels in 1880.

For the week ending Aug. 12 receipts and shipments at Chicago and Milwaukee were:

	—Receipts.— 1882.	1881.	—Shipments.— 1882.	1881.
Chicago.....	1,263,859	3,618,129	2,007,145	3,066,578
Milwaukee	73,594	221,950	51,348	326,287
Both	1,337.453	3,840,079	2,058,493	3,392,865

There is here a decrease of 65 per cent. in the receipts and of 40 per cent. in the shipments of the two places. The receipts of the week are extraordinarily small. At Chicago after the middle of July there was a great increase of the wheat receipts, but these seem to have suddenly dwindled after July. The receipts of the two places for four successive weeks, in bushels, have been:

—Week ending— July 22.	July 29.	Aug. 5.	Aug. 12.	4 weeks.
2,891.664	3,318,190	2,824,962	1,337,453	10,372,269

For the corresponding four weeks last year the receipts were 14,601,195 bushels, and then they were much above the average in the last week. This year the decrease in the last week from the previous week is more than 30 per cent.

Receipts and shipments at Buffalo for this week ending Aug. 12 were:

	—Receipts.— 1882.	1881.	—Shipments.— 1882.	1881.
By rail.....	591,500	690,200	912,300	1,632,800
By water.....	1.760,000	1,872,100	1,369,050	924,100
Total.....	2,351,500	2,562,300	2,281.350	2,556,900
Per cent. by rail.	25.1	27.0	40.0	63.9

Notwithstanding the higher rates, the percentage of receipts by rail is nearly as large this year as last; of shipments, however, it is very much smaller. The total Buffalo business is not very much smaller this year than last.

Receipts at four Eastern ports for the week ending Aug. 12, were:

Bushels:	New York.	Boston.	Phila.	Baltimore.	Total.
1882. ..	1,889,025	306,135	556,600	1,159,206	3,910.966
1881.....	3,095,979	316,255	634,920	1,251.239	5,298,393
1880.....	3,367,578	732,725	896.400	1,917,709	6,914,412
P. c. of total:					
1882. ...	48.3	7.8	14.3	29.6	100.0
1881... .	58.4	6.0	12.0	23.6	100.0
1880.....	48.7	10.6	13.0	27.7	100.0

Philadelphia and Baltimore together have 43.9 per cent. of the whole this year, against 36.6 last year and 40.7 in 1880. Wheat formed 95 per cent. of the Baltimore, and but 66 per cent. of the New York receipts.

Of the New York receipts, only 502,100 bushels, or 26½ per cent., arrived by canal this year, against 972,064 bushels, and 31½ per cent. of the whole last year.

Receipts of wheat, corn and oats at Chicago, Milwaukee, Detroit, Toledo, Indianapolis and Peoria for the first and second weeks of August were :

Week to	Wheat.	Corn.	Oats.
Aug. 7..... ..	1,784,228	1,004,752	318,235
Aug. 14.....	906,261	1,085,501	535,901

The wheat receipts in the first week of August were much less than those for the last week of July. There is not much haste now in marketing the crops.

San Francisco exports in July were as follows, flour in barrels and grain in bushels, flour reduced to wheat in the totals :

Flour.....	107,594	61,692	I. 45,992	74.2
Wheat.....	1,714,442	2,281,950	D. 567,508	24.9
Total, bushels.....	2,252,412	2,589,960	D. 337,548	13.0

The wheat shipments for the month were more widely distributed than usual.

Exports of California barley by sea in July were 7,492 centals, against 1,910 centals in July, 1881. Rail shipments of barley east for the six months ending June 30 were 157,808 centals.

Crop Prospects.

The Department of Agriculture reports for the 1st of August that during July there was an improvement in the condition of cotton from 92 per cent. of an average condition to 94, which is 8 per cent. lower than in 1880 at the same date, and 2 lower than in 1875, but higher than in any other year for ten years.

At the same date the condition of spring wheat was 97 per cent. of an average, against 81 in 1881 and 1879 and 88 in 1880. There was a depreciation from 100 to 97 during July. The Department estimates the yield of all wheat, if no damage is done in harvest by sprouting, etc., at a little over 500,000,000. Since then damage has been done in Michigan which a local authority, generally accurate and careful, estimates at 10,000,000 bushels—reducing the yield to 25,000,000 bushels—which seems incredibly great damage for rains after wheat is cut, especially as the grain was already secured in the southern counties.

The Department of Agriculture reports the condition of corn Aug. 1 at 83, against 77 last year. There being an increase of 4 per cent. in acreage, this would make the prospect for 12 per cent. more corn than was promised at this time last year. But last year there was a further depreciation of the condition in August, and there may be some further improvement or great damage yet this year.

The average condition of oats is reported at 102, of barley 95, of potatoes 101, and of tobacco 87.

The department has reports from Europe indicating an average crop of wheat in England (there has been favorable weather since), about an average in France, a good yield in Germany injured in quality by rains, an average in Russia and Austria, and 15 per cent above an average in Hungary.

There is a good wheat and barley crop in Canada.

Coal Movement.

Coal tonnages for the week ending Aug. 5, are reported as follows :

	1882.	1881.	Inc. or Dec.	P. c.
Anthracite.....	630,162	546,177	I. 83,935	15.4
Semi-bituminous... ..	84,672	119,217	D. 34,545	29.0
Bituminous, Penna....	52,112	50,855	I. 1,257	2.5
Coke, Penna.....	44,987	53,255	D. 8,268	15.6

Coke shipments are showing the effects of the iron strike. There have been considerable shipments of raw coal from the Connellsville Region lately, and it is said they have been to parties who are unable to get Cumberland.

The coal tonnage of the Pennsylvania Railroad for the week ending Aug. 5, was: Coal, 145,077; coke, 44,987; total, 190,064 tons. The total this year to Aug. 5, was 6,423,736 tons.

Cumberland coal shipments for the week ending Aug. 12, as reported by the Cumberland *Civilian*, were: Over Cumberland and Pennsylvania road, 4,671; Baltimore & Ohio road direct from mines, 617; West Virginia & Pittsburgh road, 7,944; total, 13,232 tons. Total this year to Aug. 12, 596,775 tons.

Chicago coal receipts for the three months from May 1 to July 31 were :

	—Anthracite.— 1882.	1881.	—Bituminous.— 1882.	1881.
By lake.....	256,063	227,099	61,014	108,003
By rail.....	106,013	77,987	459,101	512,866
Total.....	362,076	305,086	520,115	620,869

Total receipts of all kinds were 882,191 tons, a decrease of 43,674 tons, or 4.7 per cent. from last year.

The coal tonnage of the Chesapeake & Ohio Railroad for the seven months ending July 31 was :

	1882.	1881.	Increase.	P. c.
Coal.....	481,036	422,668	58,368	13.9
Coke.....	52,235	43,304	8,931	20.8
Total.....	533,271	465,972	67,299	14.3

San Francisco coal receipts in July were 46,258 tons. For the seven months ending July 31 they were: 1882, 463,413 ; 1881, 466,755 ; decrease, 3,342 tons, or 0.7 per cent.

Lake Superior Iron Ore Shipments.

For the season down to Aug. 2, lake shipments of iron ore from the Lake Superior Region are given by the Marquette *Mining Journal* as follows:

From	1882.	1881.	Increase.	P. c.
Escanaba.....	911.470	666,751	244,719	36.7
Marquette...	522,719	307,091	215,628	70.2
L'Anse.....	25,017	23,894	2,023	8.5
St. Ignace.....	15,623	.....	15,623	....
Total.....	1,475,729	997,736	477,093	48.0

This great increase was made over shipments which were large without precedent last year, and it sufficiently accounts for the great increase in the earnings of the Marquette, Houghton & Ontonagon Railroad. Heretofore, for some years, the growth of shipments has been much more rapid at Escanaba than at Marquette.

Chicago and Milwaukee Receipts.

For the first two weeks of August receipts have been :

Chicago :	1879.	1880.	1881.	1882
Grain, bu.....	6,517,260	7,363,833	7,112,227	3,558,105
Flour, bbls.....	87,899	112,404	223,502	91,557
Hogs, No.....	107,792	273,773	194,230	118,462
Milwaukee :				
Grain, bu...	279,125	267,421	450,507	171,585
Flour, bbls.....	63,762	98,4 .2	139,696	100,987
Hogs, No...	2,809	6,868	11,935	12,624

The grain receipts were not half as large this year as last, and the hog receipts were a third less. The wheat receipts at Chicago were, however, larger this year than in any other of the four, while the corn receipts were 3,900,000 bushels, or 70 per cent. At Milwaukee the wheat receipts were not a fourth as large as last year, which is explained by the fact that it does not receive winter wheat. The stock of old spring wheat is about exhausted, while this year's spring is still in the field on the stack.

Reducing flour to wheat, the receipts of the two places for the two weeks have been :

Week to	1879.	1880.	1881.	1882.
Aug. 7..... ...	3,945,445	4,222,984	4,495,414	2,864,585
" 14.....	3,333,414	4,320,987	4,701,811	1,731,553
Two weeks.....	7,278,859	8,543,971	9,197,125	4,596,138

While the receipts for the two weeks are 50 per cent. less this year than last, for the second week they are 63 per cent. less.

New York Canal Traffic.

For the week ending Aug. 8 the Canal Auditor reports:

	1882.	1881.	Increase.	P. c.
Tons shipped.....	183,069	158,742	24,327	15.3
Miles cleared by boats....	226,100	207,952	18,1 8	8.7
Tolls.....	$326,436	$13,998	$12,438	8.9

The tons of principal articles shipped were :

	1882.	1881.	Inc. or Dec.	P. c.
Lumber.....	55,444	49,836	I. 5,608	11.2
Grain.....	43,717	11,517	I. 32,200	80.0
Iron and iron ore....	19,790	22,542	D. 2,752	12.2
Salt.	5,020	4,270	I. 750	17.6
Stone, lime and clay... ..	8,912	8,964	D. 52	0.6
Coal.	39,114	46,898	D. 7,784	16.6
Sugar, molasses and coffee	152	733	D. 581	79.2
Domestic woolens and cottons.....	92	493	D. 401	81.3

The great increase in grain shipments is due to the fact that the canal shipments were exceptionally small last year; and this may be said of the total shipments. The full affect of the railroad war was felt last year, and while the aggregate traffic was greater than now, the railroads got a much larger share of it.

Southern Railway & Steamship Association.

The Rate Committee held a meeting in New York last week, which was chiefly occupied in discussion of a proposed advance in rates. No action was taken, and no important changes were made.

Chicago Switching Charges.

The roads leading east from Chicago have given notice that at the recent meeting of the Chicago Committee the following resolutions were adopted:

"*Resolved*, That on and after Sept. 1, 1882, a switching

charge of $2 per car will be made on all grain loaded at elevators or grain warehouses.

"*Resolved*, That on and after Sept. 1, 1882, the railroad companies will decline to furnish men to load freight at the packing houses in the Union Stock Yards, at Bridgeport, or at any private sidings in or around Chicago, nor will they bear the expense of such loading performed by shippers."

THE SCRAP HEAP.

Locomotive Building.

The Hinkley Locomotive Co., in Boston, has lately completed 10 engines for the Northern Pacific and several consolidation engines for the New York & New England road.

The Baldwin Locomotive Works, in Philadelphia, are completing 15 engines for the Manhattan Elevated road in New York.

Car Notes.

The Jackson & Sharp Co., in Wilmington, Del., is building a number of passenger cars for the Pensacola & Atlantic road.

The Georgia Railroad shops in Augusta, Ga., are building three baggage, mail and express cars for the road, and will soon begin work on two passenger cars. They are also building a number of freight and coal cars. The new freight cars on this road are all built to carry 20 tons.

Bridge Notes.

The Morse Bridge Works, in Youngstown, O., are making the iron work for the roof of the tunnel of the Pittsburgh, McKeesport & Youghiogheny road in Pittsburgh.

The Pittsburgh Bridge Co. is building a bridge 600 ft. long over the Youghiogheny river at Dawson, Pa., for the Pittsburgh & Youghiogheny road.

Wilkins, Post & Co., of the Atlanta Bridge Works in Atlanta, Ga., have just put in a large iron turn-table at the East Rochester round-house of the New York Central & Hudson River road.

Iron and Manufacturing Notes.

Ella Furnace, at West Middlesex, Pa., will go into blast in a short time. It takes the place of two old furnaces, which have been pulled down.

The Wheeler Iron Co. has put its Fanny Furnace at Middlesex, Pa., out of blast, and will repair it thoroughly.

The Westerman Iron Co., at Sharon, Pa., will hereafter be known as the Sharon Iron Co.

Kell Ridge Furnace, near Sharon, Pa., has gone out of blast.

The Republic Iron Works, Limited, was organized in May last, with Mr. Horace Crosby as Manager. They purchased what is known as the Wharton Mill, on the Southside, and are now remodeling the same, putting in new machinery, and making important additions, which we will mention hereafter. They will manufacture, when they start, pipe and boiler tube iron, and will give employment to 250 men. —*Pittsburgh Manufacturer.*

The West Penn Steel Works, at Leechburg, Pa., are running full time on orders. They make steel by the open hearth process, turning out 500 tons a month.

The Manchester Iron & Steel Co. has issued $300,000 bonds, secured by a first mortgage on its works in Allegheny, Pa. The bonds bear 6 per cent. interest.

The Rail Market.

Steel Rails.—Quotations are $47.50 to $50 per ton at mill, with very few sales reported. It is said that large buyers are holding off for lower prices, and that some of the mills will soon be in need of orders.

Iron Rails.—But few sales are reported, and the demand is chiefly for light rails. Quotations continue at $45 to $48 per ton at mill, according to section.

Rail Fastenings.—Spikes are quoted at $3 per 100 lbs. for large orders and $3.10 to $3.15 for small lots. Fish-plates are quoted at $2.50 to $2.70 per 100 lbs.; track-bolts, $3.75 to $4.25.

Old Rails.—Philadelphia prices are $26 to $27 per ton for tees and $28 for double-heads, iron rails, with few sales reported.

The Iron Strike.

The election for officers of the Amalgamated Association in Chicago last week, resulted in the re-election of the old officers, as follows: President, John Jarrett; Secretary, Wm. Martin; Treasurer, James Penny; Trustees, Wm. Weighe, Samuel W. Waltneight and Edward Rogers; Vice-Presidents, P. Keeny, Samuel Hackwelder, A. F. Carpenter, Wm. White, John I. Davis and Andrew Lee. The next convention will be held in Philadelphia. The session just closed is declared to have been harmonious throughout, and its results satisfactory to all concerned. The most important action taken was in the abolition of the supremacy of Pittsburgh in the matter of ordering a strike to be commenced. Hereafter when the workers in any district demand a new scale the question must be submitted to all the other districts, voted upon in each, and delegates elected to a wages convention, the delegates to which shall be instructed by their constituents, and it shall require a two-thirds majority of all the delegates to adopt any demand for an increase of the scale or to decide upon a strike. The Association will be represented hereafter in an upper and a lower house, the district convention answering to the latter, and the wages convention, with delegates from all the districts, answering to the former. Another reform that the delegates consider the most satisfactory of all was made to meet the objection urged sometimes by the manufacturers in answer to a demand for increased wages: "What security have we that you will not demand another increase next year?" and consists in empowering the nailers and puddlers to sign a scale for five years under certain conditions, intended to guard against the manufacturers taking advantage of them.

The National Tube Works Co. at McKeesport has its Works now in full operation with non-union men, employing over 800 men. Rees Brothers at New Castle, Pa., have also given notice that they will start up with non-union men, if their former employés do not return to work in a short time.

It is said that other mills at and near Pittsburgh will also try to start with non-union men. The strike is apparently not approaching an end.

Train-Wrecking.

A dispatch from Milwaukee, Aug. 12, says: "An attempt at train-wrecking was discovered on the Chicago & Northwestern road, a few miles south of this city, to-night. The engineer of the passenger train due here at six o'clock discovered, in a cut of the road, between Rock Creek station and the county line, a tie across the rails. The train was stopped in time, and it was found that the tie was fastened by large spikes. The station officials along the line were notified of the fact, and ordered to keep close watch. A switch-tender named Donoghoe, near Oak Creek station, discovered shortly before the arrival of the 8 p. m. Chicago passenger train that a man, about the same place as the first indicated, made a second attempt to fasten a tie across the rails. On the approach of Donoghoe the man took to the woods, but was caught and held until the arrival of the passenger train, on which he was taken to Milwaukee and handed over to the authorities. He gives his name as Wm. Johnson, but refuses to make any further statements. No formal charge, as yet, has been made against the prisoner."

Baldwin Locomotive on Exhibition in England.

The locomotive with a single pair of large driving wheels (illustrated in the *Railroad Gazette* of June 11, 1880), which was built at the Baldwin Locomotive Works and afterwards bought by Mr. Eames, the inventor of the brake which bears his name, and taken to England, is now in the Exhibition of Life Saving Appliances at the Alexandra Palace, on the outskirts of London, and is fitted with the brake referred to.

Young Men's Christian Association, Railroad Branch.

The Young Men's Christian Association has opened rooms for its Railroad Branch in a building adjoining the Boston & Albany station in Springfield, Mass. The rooms include a reading room well supplied with the daily papers, technical papers and magazines, bath-rooms and other conveniences. Additions will be made from time to time.

The New Pullman Car Works at Pullman.

The following is a complete list of the cars built at the Pullman Works since April 20, 1881, the date on which the first order was received:

Twelve caboose cars for the International & Great Northern; twelve first-class passenger coaches and eight sleepers for the Union Pacific; 22 first-class passenger coaches for the Chicago & Northwestern; three first-class passenger coaches and two second-class passenger cars for the Utah & Northern; four first-class passenger coaches for the St. Paul, Minneapolis & Manitoba; 65 flat cars for the Pullman Company; 20 first-class passenger coaches for the New York, Lake Erie & Western; two chair cars and six passenger cars for the Chicago & Eastern Illinois; two first-class and two second-class passenger cars, and two baggage and mail cars for the Denver & New Orleans; 10 first-class, 10 second-class, and six baggage and mail cars for the Toledo, Cincinnati & St. Louis; seven first-class passenger coaches for the Chicago, St. Paul, Minneapolis & Omaha; six sleepers for the Northern Pacific; four sleeping-cars for the Chicago, Burlington & Quincy; 15 first-class passenger coaches for the St. Louis & San Francisco; seven first-class passenger cars for the New York, West Shore & Buffalo; 18 sleepers for the service of different roads.

Besides these cars which have been built and delivered, 17 new passenger cars have been ordered by the Cincinati, Hamilton & Dayton, and the same road is about to order 10 suburban cars to cost about $4,000 each; 100 box cars are also to be built for the New York, West Shore & Buffalo at an average cost of $800 each.

The Kind of Man She Liked.

"May I open the window for you, miss?" politely inquired a gentleman of a young lady on the Northern Pacific road, as he saw her tugging at a sash that had not yet recovered from the preceding winter. She glared at him a moment, and gave a reluctant consent. "Folks can't be too careful who they speak to or accept favors from," she remarked, after a long pause. "That is very true," replied the gentleman, quietly. "Are you a Boston drummer?" she inquired. "No, I am not," he answered. "A hotel clerk?" "No, not a hotel clerk." "I'm glad of that," said she. "I never let a drummer or hotel clerk speak to me. Maybe you're an actor." "No, not an actor." "That's first class!" she exclaimed, showing her dimples and becoming more and more confidential. "If an actor should speak to me, I'd die. What is your business?" "I'm a barkeeper, and I'm traveling West to get a territorial divorce from my wife," exclaimed the gentleman. "Oh, I'm so glad," giggled the girl. "Reach down my satchel; there's a bottle of whiskey and a pack of cards in it. I'll play you an odd game of California Jack for $5 a corner! I like to meet a gentleman, and I know 'em when I see 'em. Ask the conductor if he's got a corkscrew, will you?"—*Boston Herald.*

A Runaway Locomotive.

Monday evening a shifting engine on the Lehigh Valley Railroad determined to take the reins into her own hands. She had been stopped at Ferndale by the engineer, who shut the valve and jumped to the ground. No sooner had the engineer alighted than the engine started off down the road at lightning speed, minus engineer or fireman. As she went along her speed increased until she had trotted to within a short distance of the Valley depot, at Allentown, where a brakeman, at the imminent risk of his life, jumped aboard and succeeded in stopping her before reaching the railroad bridge. It is supposed that the valve was opened by the jar caused by the engineer jumping the engine.—*Allentown (Pa.) Telegram.*

Precautions Against Accidents from Trains Breaking in Two.

The following circular has been issued by General Manager S. M. Felton, Jr., of the New York & New England road:

"Hereafter Transportation Rule 31 will read as follows. Engineers, firemen, conductors and brakemen will see that it is carefully observed in every particular:

"*Rule* 31.—As soon as an engineer discovers his train is broken apart, he will sound a succession of long blasts of the whistle as a notice that the train has parted, and will keep the part of the train the engine is attached to moving until he is satisfied the rear portion of the train is stopped, or in a position where he can see it approach in sufficient time to avoid a collision. Should the forward brakeman discover the parting of the train, it will be his duty to notify the engineer.

"The man on the caboose, as soon as he discovers that the train has broken, must bring his part of the train to a full stop, and must not allow it to run, by gravity or otherwise, until the forward portion has returned for it.

"When the train breaks in more than two parts, great care must be used in stopping the rear part first, then the part next forward, and so on until the whole train is stopped.

"When the engineer considers it safe to stop his portion of the train, he will at once send back the front brakeman, or if he is not at hand, the fireman, to arrange for uniting the train.

"The conductor or rear brakeman must, as soon as the rear part of the train is detached, send back a flagman or go himself to protect the rear of his train. Where there are two men on the rear part of the train, one must go ahead to meet the flagman from the front portion of the train and arrange for uniting the broken parts. The engineer will have the right to the road to back up, after the missing part of the train has been found, and he is protected by a flag. If there are more cars attached to the engine than can be backed up without serious delay, the engineer will proceed to the next siding, leaving his cars and a flag; returning, as above specified, for his train. Should any station, telegraph office, other trains or trackmen be passed by the engineer, he must repeat the signal indicating that his train has parted."

The Coming Sandwich.

There is to be a national convention of railroad eating house proprietors to adopt some new article of food in place of the sandwich—something that one can eat without blasting it off in sections. What the traveling public needs is something simple and appetizing, that is cheap and handy, which can be eaten without carrying a set of burglars' tools along. Of course if a person understands the combination of a sandwich he can get into it, but half the people might as well try to eat an express messenger's safe. At the proposed convention a Chicago proprietor of an eating-house will exhibit a new article of food, composed of one part codfish ball, two parts liver, one part bologna sausage, one part cheese, and two parts stale bread—the whole clap-boarded up with building paper or strawberry shortcake crust and roofed with hard tack. The ground plan and front elevation of the new railroad food looked well as on exhibition at the morgue in Chicago, and it seems as though it ought to take the place of the sandwich. A Cincinnati railroad restaurant keeper thinks he could improve on the new Chicago food by placing it in a percussion shell, about the size of a cocoanut, which could be exploded by pounding it on the arm of a car seat, or hitting it against a boot heel, though it would be difficult to regulate the charge to explode it, and there might be danger of blowing out an eye of an innocent passenger. Some of the old eating-house keepers are so wedded to the old sandwich that they do not want to give it up, hoping to compromise at the convention by having the sandwich put together with a hinge and opened by a time lock. This, however, would be dangerous in the case of children, who would be continually getting their fingers caught in between the two shutters of the of the sandwich. Those who favor retaining the sandwich are no doubt men who have a stock on hand sufficient to last eight or ten years, all painted and grained and varnished, and they think it will be hard to get rid of them, but possibly the government will take the sandwiches off the hands of the restaurants to use for exterminating the Indians. By firing the sandwiches at the Indians the government can prosecute the war and issue rations to feed the survivors at the same time. If a sandwich struck an Indian it would kill him, and the family could pick up the missile that had laid their father low and eat it. The sandwich would not be a total loss, by any means.—*Burlington Hawkeye.*

A Brave Workman.

A St. Gothard train was recently, it is reported, saved from what might have been a serious disaster by an act of rare courage and devotion on the part of a workman. As the noise of the train was heard in the distance, a large stone fell from the rocks above, at the outlet of the Polmengo Tunnel. A way guard who was on the spot succeeded, by a great effort, in pushing the obstacle aside, but only at the sacrifice of his life, for at the same instant the train came up, and before he could get out of the way he was caught by the locomotive and cut to pieces. If this is true that man's memory ought to be treated as that of a hero.—*The Engineer.*

Kentucky Diversions.

As freight train No. 12, on the Cincinnati Southern, was passing through Walton, Ky., yesterday morning, John Richy and P. Norman sallied out of Ed. Northcut's saloon and Richy fired a revolver at the conductor and two brakemen who were sitting on the top of the caboose. John B. Carson, one of the brakemen, was struck by a bullet in the left side of the head, and fatally injured. He was taken to Georgetown, Ky., on No. 3, in charge of his brother. Richy was arrested and had a preliminary examination, at which it was developed that Carson was a "perfect stranger, sir," to him, and no reason is known for what is called in a private telegram the "freak" of the prisoner.—*Cincinnati Commercial, Aug. 2.*

Thus brakemen in Kentucky have a new danger added to the many which beset them everywhere. To be crushed between cars and run over seem to be necessary drawbacks to their position, but to be made targets for the sportive colonel or the genial major of Kentucky seems a little too much.

In the Sleeping Car.

One evening, when we had retired, a low voice was suddenly heard from the center of the car:

"Fanny, Fanny, give me a kiss, and say you forgive me."

Then a little louder:

"Fanny, Fanny, I can't sleep unless you forgive me. Give me a kiss and say you forgive me."

At last the voice of the penitent husband, regardless of the tittering from the surrounding partitions, spoke again:

"Fanny, Fanny, just one kiss and say you forgive me."

At last a peppery old gentleman, down at the end of the car, popped his head out and shouted:

"Oh, Fanny, for goodness sake! do give him a kiss and let us get some sleep."

Even then, amidst the outburst of laughter from the other passengers, you could hear the poor man catching a curtain lecture.

"There! I told you so. Now you see what you have done. I knew every one could hear you."

But at last peace reigned, and possibly Fanny gave him the narcotic kiss of reconciliation.—*Richmond State.*

OLD AND NEW ROADS.

Baltimore & Delta.—This road is now completed to Loch Raven, Md., five miles beyond the late terminus at Townsontown, and 12 miles from the station in Baltimore. The road was opened to the new terminus on Aug. 16.

Beebe & Clarendon.—This company has been organized to build a narrow-gauge railroad from Beebe, Ark., to Clarendon, to connect at the last-named place with the Texas & St. Louis road.

Beebe, Conway & Des Arc.—This company has been organized by local parties to build a railroad from Beebe, Ark., on the Iron Mountain road, to Conway & Des Arc.

Boston, Hoosac Tunnel & Western.—The following circular has been issued by Mr. Wm. V. Reynolds, General Manager: "No requests for annual passes for officers or employés of this company, will be honored, unless countersigned by J. F. Ransom of the President's office, or upon the personal request of the president or general manager."

The company is considering the question of building a branch from North Adams, Mass., to Adams, four miles.

Boston & Maine and the Eastern.—The Boston *Transcript* says: "There have been no recent meetings of the Boston & Maine and Eastern Railroad Company directories upon the question of uniting the interests of both roads, but several propositions have been considered in the joint committee which has had the question in charge for some months. The nub of the negotiations is just here,— up to the present time the Boston & Maine Railroad Company has made no proposition acceptable to the Eastern Railroad Company stockholders, and no lease or consolidation can take place until they do. General Samuel A. Lawrence and

Mr. T. C. Weeks hold a majority of the Eastern Railroad Company stock, and they know the value of it and believe in its future dividend capacity. They will of course accept no proposition not advantageous to this stock. The Boston & Maine Railroad must either have control of these blocks of stock or make a proposition in which the Eastern will share some of the advantages of consolidation. This is the status of the matter, and here it will rest until the Boston & Maine Railroad Company has something further to say."

Burlington & Northwestern.—The Coppack Branch of this road has been extended from Coppack, Ia., west to Fairplay, one mile. Fairplay is 17 miles from the main line at Winfield, and 51 miles from Burlington.

Burlington & Ohio River.—A contract for grading this road from Carlinville, Ill., to Gillespie, 12 miles, has been let to Eaton & Atkinson, of Burlington, Ia., who are to finish the work by Dec. 1, next.

Central Iowa.—This company has given notice to the New York Stock Exchange of an intended increase of its capital stock by the issue of 17,500 shares, of which 17,000 shares are to be used for the acquirement of new road, and 500 shares to take up old stock.

Central, of New Jersey.—Track is laid on the extension of the High Bridge Branch from Port Oram, N. J., to Lake Hopatcong, about five miles. At Hopatcong the extension connects with the Ogden Mine Railroad, which has been leased by this company, and which extends to the Ogden Mine, 10 miles from Lake Hopatcong. This makes the branch 40 miles long, from the main line at High Bridge to the Ogden Mine. The Ogden Mine road has hitherto had no rail connection, the ore brought down by it being all shipped by canal.

Central Pacific.—On the extension of this company's Northern road from Willows, Cal., track is laid to Orland, 16 miles, and grading is about finished to Tehama, 20 miles further. Tehama will be the terminus of the extension, which runs through a very fine country, already well settled.

Charleston & Savannah.—The South Carolina Supreme Court has just given its decision in the long litigation over the foreclosure sale of the old Savannah & Charleston road. The decision does not affect the present company, which was organized by the purchasers at the sale, but is in relation to the distribution of the purchase money.

The following points are decided:

1. The report of Referee Pringle as to the proof of *estoppel* is in the main sustained, and the priorities of bonds to conform thereto.
2. The bonds and coupons of 1856, which are unaffected by *estoppel*, have the first lien.
3. The coupons of Hand have no priority over bonds and other coupons of this class.
4. No part of the sevens issued under the act of 1869 take the place of the sixes (1856) which are estopped and take rank with the unaffected sixes. They do not change places.
5. Those who funded coupons of 1856 are not entitled to be restored to their original condition, but must stand on the security accepted, the interest funding bonds of 1869.
6. The interest funding bonds have no lien or security other than the guarantee of the state under the act of 1869.
7. The coupons of James Adger & Co. and Miller and Isaacs are *res adjudicata*, and must stand as established claims.
8. The claims of creditors of C. T. Mitchell, the Receiver, for debts contracted by him while running the road, cannot have preference and be paid out of the proceeds of sale, there being no receiver's fund arising from income, and the facts of the case not warranting a charge upon the *corpus*.
9. The claim of C. T. Mitchell for building the Bee's Ferry Extension is allowed, but only to receive the proportion of the purchase money arising from the sale. The bonds of James Conner, who never consented to it, excepted.

Chicago, Milwaukee & St. Paul.—This company began to receive freight in Chicago for Council Bluffs and Union Pacific points on Aug. 14. Through passenger trains will begin to run over the new line very soon.

Chicago, St. Paul, Minneapolis & Omaha.—Work has been pushed all this season on this company's line from Chippewa Falls, Wis., northward to Superior City, 141 miles. The grading is all completed, and track is reported laid to a point 110 miles from Chippewa Falls, leaving 31 miles to reach Superior.

Cincinnati, Hamilton & Dayton.—At the special meeting in Cincinnati, Aug. 16, the stockholders voted to authorize the proposed issue of $1,000,000 new preferred stock, to be used for improvements of the road. There was no serious opposition. The Erie interest voted on 20,000 shares, and the Seney, or New York, Chicago & St. Louis interest, on 9,000 shares.

Cincinnati, Wabash & Michigan.—The formality of consolidating the Cincinnati, Wabash & Michigan with the Elkhart, Niles & Lake Michigan (which is owned by the former), has been completed. The former road extends from Anderson to Goshen, Ind., and the latter is an extension of the Cincinnati, Wabash & Michigan from Goshen by way of Elkhart and Niles to Benton Harbor, on Lake Michigan, a distance of fifty-five miles. The new road, as consolidated, will be 165 miles in length.

Columbus, Chicago & Indiana Central.—The directors having failed to call an election to fill the places of five directors whose terms expire June 1, 1882, certain stockholders are about to call a meeting for that purpose under the general laws of Ohio. Stockholders who desire to be represented at the meeting, are requested to transfer their stock without delay.

Columbus, Hocking Valley & Toledo.—Track has been laid on an extension of the Snow Fork Branch from Orbiston, O., to Murray, two miles.

Connecticut River.—The 1,000 shares of new stock sold at auction last week in Boston were taken at prices varying from 163½ to 165¼, a little above the current quotations on the Boston Stock Exchange. The company has no bonded debt, and the stock is considered a steady 8 per cent. stock.

Cumberland & Ohio.—It is reported that so much of this unfinished road as has not passed into the possession of the Louisville & Nashville Company, has been sold to the Chesapeake & Ohio; and will be used by that company as part of a line to Nashville.

Delaware & Hudson Canal Co.—This company reports its earning in New York for the year ending June 30 at $4,948,653, on which the state tax is $24,743.

Denver, Longmont & Northwestern.—Officers of this company deny that it is indebted to the Denver, Utah & Pacific, and also claim that its debt does not exceed the value of the road.

Denver & Rio Grande.—Track on the Utah Extension is now laid to Cimarron, Col., forty miles westward from Gunnison, and 330 miles from Denver. About 300 miles remain to be laid to reach the present terminus of the line from Salt Lake.

Des Arc & Brinkley.—This company has been organized to build a railroad from Des Arc, Ark., on White River, to Brinkley, on the Memphis & Little Rock road, about 18 miles.

Des Moines & Kansas City.—It is reported that money has been secured to build this road, and that work will soon be begun.

Eastern Junction, Broad Sound Pier & Point Shirley.—This road is now completed from the Eastern road at Point of Pines, Mass., along the sea shore to Ocean Spray, about 2½ miles. It has not yet been decided whether to extend it to Point Shirley, as originally proposed, or to end the line at Winthrop.

European & North American.—The proposed lease of this road to the Maine Central has been passed upon favorably by the directors of both companies. A joint committee has been appointed to draw up the lease, which will be presented to the directors and afterwards submitted to the stockholders at special meetings.

Flint & Pere Marquette.—This company makes the following statement for the half-year ending June 30, the mileage worked being 345.16 miles this year and 317.71 miles last year:

	1882.	1881.	Decrease.	P.c.
January	$168,004	$131,528	$36,476	27.6
February	163,903	119,721	44,182	36.8
March	195,814	158,214	37,600	23.9
April	188,569	171,446	17,123	10.0
May	175,113	162,540	12,573	7.7
June	160,240	160,099	141	0.1
Total earnings	$1,051,643	$903,548	$148,095	16.4
Expenses	666,675	642,805	23,870	3.7
Net earnings	$384,968	$260,743	$124,225	47.6
Per cent. of exps	63.39	71.14		

After payment of coupons there remained $250,602.12 for six months, equal to 3.89 per cent. on preferred stock. The pay rolls of the company for the six months of 1882, including construction of cars and buildings, were $433,777.20.

The gross earnings for July were $147,461.80, against $137,639.60 in 1881, a gain of $9,822.20, or 7.1 per cent.

There was expended for construction account in the first six months of this year the sum of $123,080.59.

The increase in passenger traffic for the first six months of 1882 was $66,603.70, and for the month of July, 1882, $11,276.57.

Ft. Smith & Southern.—This company has been organized to build a railroad from Van Buren, Ark., near Ft. Smith, southward to Texarkana. It is, apparently, intended to be an extension of the Arkansas Branch of the St. Louis & San Francisco.

Galveston, Harrisburg & San Antonio.—On the El Paso Division (which is built and worked by the Southern Pacific) regular trains now run to Lozier, Tex., 354 miles east by south from El Paso, and track is laid for 19 miles further. There remain 14 miles to reach the Pecos crossing, but some heavy grading is needed, and the track, it is said, will hardly be laid before October. At the Pecos it is expected that the tracklayers from San Antonio will meet the parties working from El Paso, completing the line.

On the eastern end track is laid to the Rio Grande, about 40 miles westward from Eagle Pass Junction, leaving about 40 miles to be laid to reach the Pecos.

Genesee Valley.—The Genesee Valley Terminal Company has been incorporated to build a branch from this road a few miles south of Rochester, N. Y., to the New York Central at a point about three miles west of Rochester.

Grand Trunk.—A dispatch from Montreal, Aug. 16, says: "The Grand Trunk Railway Company has, it is said, entered into an agreement with Mr. Senecal and the North Shore Railway Company to build a branch line giving them uninterrupted connection between Quebec and Ottawa, independent of the Canadian Pacific Railway Company. They have also secured the South Shore Railway & Tunnel Charter, and the Montreal & Sorel Railway, and will embark all their live freight for the British market at Sorel instead of at Point Levis."

Grand Trunk and the Great Western.—At the special meetings in London, England, Aug. 11, the agreement of consolidation was again ratified by the stockholders of both companies. The Grand Trunk vote was unanimous and the Great Western very nearly so, though a protest was entered by the small minority, who threaten legal proceedings to defeat the consolidation.

At midnight of Aug. 11, the Great Western road and all its property were formally transferred to the agents of the Grand Trunk or consolidated company. No changes have yet been made, and it is said that none will be made, except a few made necessary by the consolidation of the management.

Great Western.—On Aug. 10 a suit was begun at Detroit on behalf of the Erie & Chicago Car Loan Company to recover from this company a large amount claimed as due on a contract made with the Detroit & Milwaukee 10 years ago, and afterwards assumed by the Great Western. This contract provided for the lease of a large number of cars at a mileage of 1½ cents per mile, but subsequently, when the general rate of car mileage was reduced, the Great Western refused to pay more than ¾ cent per mile mile, the general rate. The present suit is brought to recover the difference.

Under this suit an attachment was put upon the ferry-boats and other property of the Great Western in Detroit, and for a time a serious interruption to traffic was threatened. Subsequently, however, arrangements were made to permit the use of the ferry-boats. The suit was begun at this time in order that it might ante-date the consolidation of the Great Western with the Grand Trunk.

Green Bay, Stevens Point & Northern.—This company has leased its road to the Green Bay, Winona & St. Paul Company. The line extends from Plover, Wis., to Stevens Point, six miles, and arrangements are being made to extend it northward from Stevens Point.

Hannibal & St. Joseph.—The announcement made that the United States Circuit Court in Missouri had decided the suit of the Hannibal & St. Joseph Company adversely to the state was substantially correct, as Judge McCrary sustained the position taken by the railroad company on nearly every point. The order of the Court directs a reference to a master in chancery to take proofs and report the precise amount due the state, which it is understood will be about $100,000. The state law required that whenever there was a surplus in the Treasury it should be invested in bonds, and the Court held this statute was mandatory, and that the state officers failed in their duty when they neglected to invest the money paid by the railroad company according to its provisions.

Houston, East & West Texas.—This company's statement for the quarter ending June 30, is as follows:

Earnings ($678 per mile)	$70,466
Expenses (40.2 per cent.)	28,352
Net earnings ($405 per mile)	$42,114

The surplus earnings were all applied to construction.

Humeston & Shenandoah.—The track on this road is reported laid from Humeston, Ia., west to Grand River, 30 miles, and from Shenandoah, Ia., east to Clarinda, 21 miles. Tracklaying is also in progress from Conway eastward. Grading is nearly completed on the whole line of 113 miles. The road is owned jointly by the Chicago, Burlington & Quincy and the Wabash, St. Louis & Pacific companies.

Little Falls, Dodgeville & Piseco Lake.—A preliminary organization has been made of this company, to build a railroad from Little Falls, N. Y., north by east through Dodgeville, Salisbury and Devereaux to Piseco Lake, about 36 miles.

Louisville, New Albany & Chicago.—This company has decided to build new and extensive shops in LaFayette, Ind., that city having given 16 acres of land and $25,000 in money.

Marion, Tennessee & Rutherfordton.—Meetings are being held along the line to advocate the building of this road and secure subscriptions to the stock. The proposed line is about 60 miles long, from Rutherfordton, N.C., northward through Marion to a connection with the East Tennessee & Western North Carolina road.

Milwaukee, Lake Shore & Western.—This company makes the following statement for the half-year ending June 30.

	1882.	1881.	Increase.	P.c.
Earnings	$422,545	$254,931	$167,614	65.7
Expenses	271,826	203,468	68,358	33.7
Net earnings	$150,719	$51,463	$99,256	192.7
Fixed charges	115,000	77,000	38,000	49.4
Surplus	$35,719			
Deficit		$25,537		

The increase in fixed charges was due to the issue of new bonds on extensions of the road.

Montreal & Sorel.—A Montreal dispatch says that this road has been sold to the Grand Trunk. It extends from St. Lambert, P. Q., at the east end of the Victoria Bridge, southeast 46 miles to Sorel, where it connects with the Southeastern road.

New York Central & Hudson River.—This company reports to the Comptroller of New York that its earnings for the year ending June 30, were $24,557,041, on which the state tax will be $122,785. This statement, we believe, does not include some of the miscellaneous receipts on which, the company claims, taxes cannot be assessed under the law.

New York & Council Bluffs.—This company has filed articles of incorporation to build a railroad from Council Bluffs by Oskaloosa, Ia., Lacon, Ill., Ft. Wayne, Ind., and Akron, O., to Red Bank, Pa., where connections will be made for New York. This is the familiar old project—"200 miles shorter than any existing line"—in a new form.

New York Freight Handlers' Strike.—The strike is now completely at an end, the show of resistance kept up by the Jersey City men after the New York men had formally given up, having lasted only two days. A large number of the strikers have been taken back by the companies at the old wages, 17 cents an hour, while others have found work elsewhere.

New York & Long Branch.—The work of laying the second track on this road has been completed. The trackmen will now be employed in renewing the old track wherever it is found necessary. Since the accident at Little Silver the bridgemen have been engaged in putting in quadrails and guard-timbers on all the bridges.

New York & New England.—A dispatch from Boston, Aug. 16, says: "Books for subscription to the stock recently held by the state of Massachusetts, were closed last night, and the entire amount of stock within 1,500 shares was taken by the stockholders of record. Had the company been able to give what was asked for by those who wanted more than their *pro rata* share, a very much larger amount would have been taken. The transaction of taking over the stock from the state and distributing it to the stockholders is therefore an entire success, and the position of the company is materially strengthened thereby."

New York, Ontario & Western.—It is stated that the $10,000,000 New York, West Shore & Buffalo bonds offered by this company to its stockholders have all been subscribed for. This will give the company $5,000,000 in money, which will be enough to complete the new work now in hand.

New York & Sea Beach.—The New York Supreme Court has granted a decree of foreclosure against this company, and has appointed Joseph Bartlett a referee to sell the property. The decree fixes the amounts due at $200,000 principal and $18,550 interest under the first mortgage; $200,000 principal and $15,900 interest under the second mortgage. The road extends from Bay Ridge to Coney Island, six miles, and has never paid very well.

New York, Susquehanna & Western.—Track is now laid on the Water Gap Extension from the junction with the main line at Two Bridges, N. J., westward about eleven miles. The long fill across the Wallkill Valley at Sparta is finished, and two trains are at work ballasting the track. Ties are being delivered along the line, and a large quantity of rails are stored at Sparta.

Northern Pacific.—On the Clark's Fork Division track is now laid to Noxon, Idaho, 300 miles from Wallula Junction, and 17 miles eastward from the late terminus at Cabinet Landing.

The bridge-builders have finished the erection of the first 400-ft. span of the bridge over the Missouri at Bismarck. Work on the bridge is progressing steadily.

Ohio & Mississippi.—Receiver Douglas reports to the Court for July as follows:

Cash on hand July 1	$243,454.98
Receipts from all sources	480,414.50
Total	$723,869.48
Disbursements	688,341.57
Cash on hand Aug. 1	$35,527.91

The disbursements exceeded the receipts by $207,927.07 for the month. The disbursements included $231,346.70 to pay coupons.

Ohio & Michigan.—This company has been organized to build a railroad from Toledo, O., by way of Tecumseh, Marshall, Battle Creek and Allegan to Grand Haven, Mich., about 180 miles. The line will run through country at present occupied by the Lake Shore, the Michigan Central

the Chicago & Grand Trunk and the Detroit, Grand Haven & Milwaukee. The organization is controlled by the Seney syndicate, which owns the New York, Chicago & St. Louis and the Ohio Central roads, and the road is intended to be a feeder to those lines.

Oregon Railway & Navigation Co.—The line from Walla Walla, Wash. Ter., to Blue Mountain, 20 miles, is to be changed from 3 ft. to standard gauge shortly. The location is also to be changed so that the road will pass through the town of Milton.

On the line from Portland to the Cascades track is now laid from East Portland, Or., eastward to Sandy River, 17 miles. About eight miles of rock-cutting are to be finished before the track can be laid to the Cascades.

Pensacola & Atlantic.—The long bridge over the Escambia River has been completed, and regular trains have begun to run between Pensacola, Fla., and Milton, 20 miles. Work is progressing well at other points.

The tracklayers working from Marianna, Fla., westward, have reached Yellow River, 28 miles. Work is being pushed toward the Choctawhatchie.

Philadelphia & Reading.—The Northern Central Company has applied for an injunction to prevent this company's new line to Williamsport from crossing its tracks at grade near Sunbury, Pa. The Reading engineers claim that an overhead crossing can be made only at a great increase in the cost of the road.

Pittsburgh, McKeesport & Youghiogheny.—The Pittsburgh *Telegraph* says: "The 1,600-ft. tunnel projected by this company on the South Side is being pushed by 50 men, work proceeding from each end. The work is peculiar in its way, inasmuch as the tunnel at no place is over a foot below the surface, and that the material dug into is pure cinder, clay and ashes. This taken into consideration with the fact that work must be pushed under heavy buildings, and the network of tracks connected with the American Iron Works makes the labor arduous and precarious. The trench or cut is 40 ft. wide, and at every foot the cinders must be shored to prevent their caving in. The tunnel wall is 6 ft. thick at the bottom and 2½ ft. thick at the top. The roof is not an arch, as is usually the case, but is formed of plate and angle beams. Four narrow-gauge tracks enter the cut and furnish the necessary means for removing the material. Shafts at regular intervals also aid in this work. The tunnel passes under the shipping shed, metal shed, scrap shed and other structures of the great iron works, to say nothing of the forty narrow and standard gauge railway tracks. The latter form part of the Pittsburgh & Lake Erie and the Pittsburgh, Virginia & Charleston road connections. Work on this tunnel is being hurried just now because of the favorable time occasioned by the idleness of the mill. The same road is pushing rapidly the bridge over the Youghiogheny at Dawson's station. It is 600 ft. long, and contractor Friday reports favorable progress and everything in good shape. Its cost will be about $30,000, and the Pittsburgh Bridge Co. is making the iron work. For the iron work of the tunnel, the Morse Bridge Works, of Youngstown, are the contractors.

St. Louis & San Francisco.—The St. Louis *Republican* says: "The Boston Mountain tunnel, now completed on the Arkansas Branch, is 1,693 ft. in length. It is 190 ft. from the grade of the tunnel to the summit of the ridge. The principal material found in the tunnel was a hard black shale indicating that coal may be found in that formation. The tunnel is lined throughout with heavy oak timbers, and 30 ft. at each end is protected by a brick arch and stone portal. The cost of the tunnel and approaches has been about $200,000. The work on the tunnel proper was commenced Sept. 26, 1881, and the track was laid through on July 27, 1882, consuming about ten months in its completion. The track in the tunnel is 1,727 ft. above the sea level, or 1,300 ft. above the city of St. Louis. The average height of the Boston Mountains is about 2,300 ft. The completion of the railway to Fort Smith will make it quite a summer resort for the people of the Arkansas Valley. The track beyond the mountains will probably be open to Mountainsburg, 16 miles north of Van Buren, early in September, and will be open to Fort Smith some time in October."

Contracts for the line from the tunnel to Van Buren were let some time ago, and the work from Van Buren to Ft. Smith has been let to Cameron & Halby, who cut the tunnel through.

Surveys are being made for a branch from Harrison in Boone County, Ark., to Little Rock.

St. Louis & Western.—A dispatch from Bolivar, Mo., to the St. Louis *Republican*, says: "The St. Louis & Western Railroad, formerly the Laclede & Ft. Scott Railroad, which for the last year has been slowly building a road west from Lebanon, Mo., has come to grief. On Wednesday of last week the contractors all stopped work and filed liens for the amount due them and unpaid, for material and labor for two months' estimates past due. This is a severe blow to this section of Missouri, as we were all full of hope that in the near future we would be connected with the Future Great by direct railroad communication. This road was being constructed by the Keystone Building Company, and everything went smooth until about two months ago, when the old creditors of the Laclede & Ft. Scott Railroad Company demanded their money, and were refused. Suits were instituted, and the Keystone Building Company found themselves confronted by something over $100,000 of debts. The iron at Lebanon ready to lay the track was levied on by creditors, and the demands coming thick and fast, the company collapsed.

"The principal creditors who have filed liens are John F. Gibbons for $40,000, who was doing the earthwork; Geo. O'Bannon, tie contractor, whose claim for two months' work unpaid is about $4,500; Mr. Quigley, Chief Engineer, and others for smaller amounts."

Union Pacific.—This company makes the following statement for June and the six months ending June 30:

	June.	Six months.
Earnings	$2,508,453	$13,769,491
Expenses	1,159,374	7,779,845
Net earnings	$1,349,079	$5,989,646
Per cent. of expenses	46.2	56.5

As compared with the corresponding half of 1881, the six months show an increase of $901,855, or 7.0 per cent., in gross earnings; of $173,064, or 2.3 per cent., in expenses, and of $728,791 or 13.8 per cent. in net earnings.

Since Jan. 1 last the company has expended $651,128 for renewal of rails. The main line from Omaha to Ogden is now all laid with steel rails.

Union Railway, Transfer & Stock Yards Co.—This company, better known as the Indianapolis Belt, has agreed to lease its property to the Indianapolis Union Company, which owns the passenger station and tracks in Indianapolis. The rental is to be $48,000 a year, the stock-yards not being included in the lease. The Belt road extends about two-thirds of the way around Indianapolis, and connects nearly all the roads entering the city. It is stated that the Union Company will at once connect its tracks directly with the Belt road, and will extend the line so as to complete the circuit of the city.

Wabash, St. Louis & Pacific.—The men in this company's shops in Springfield, Ill., struck Aug. 11, demanding that their arrears of wages be paid up. They resumed work upon the promise that the pay-car would arrive in a few days. They have demanded that all arrears be paid up by Aug. 31, and that they be paid regularly hereafter.

Western North Carolina.—This company has secured an injunction to restrain the Marietta & North Georgia Company from building its railroad through Marble Gap, near Ducktown, N. C. The Ducktown Line of this company has also been located through the gap.

ANNUAL REPORTS.

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Oregon & Transcontinental Co.

This company was organized last year for purposes which are fully explained in the report below, which is for the year ending June 30.

The report of Mr. Henry Villard, President of the company, says:

"The first fiscal year having terminated, it is proper that you should be informed of the progress made since the organization of the company toward the attainment of the objects for which it was formed. These objects were:

"1. To acquire and hold a controlling interest in the stocks of the Northern Pacific and the Oregon Railway & Navigation companies.

"2. To promote the company's own interest, as the holder of such stocks, by the creation of such auxiliary systems of railroad, steamship and steamboat lines as would tend to protect and increase the transportation business of these two corporations.

"3. To engage in such other commercial and industrial enterprises as would tend to hasten and widen the general development of the states and territories traversed by the Northern Pacific and the Oregon Railway & Navigation companies' lines.

"In order to provide ample means for the pursuit of this comprehensive programme, the company was formed with an authorized capital of $50,000,000. By virtue of a resolution of the board of directors, passed July 4, 1881, it was decided that no more than $30,000,000 of this authorized capital should be issued at present, of which amount $23,760,000, equal to 237,600 shares, have been actually paid for and issued up to date. The balance will be issued as paid for.

"The larger portion of this paid-in capital was invested in Northern Pacific and Oregon Railway & Navigation stocks, representing this day a market value of $26,384,150.

"The work of carrying out the second part of the company's programme was commenced last summer as soon as the condition of the treasury warranted it. Your board decided, however, to confine operations at first to providing such branch lines to the main line of the Northern Pacific as would, upon careful examination, appear indispensable for the protection and development of its traffic and the enhancement of the value of its land grant. In pursuance hereof, it was, after mature deliberation, determined:

"1. To acquire by purchase the so-called Casselton Branch of the Northern Pacific main line, the completed portion of which extends from Casselton station, in Eastern Dakota, 20 miles west of Fargo, down the extremely fertile Red River Valley, a distance of 43 miles to the town of Mayville. Beyond this point it is graded for 30 miles. In acquiring this line the purpose was entertained of extending it to the boundary of the Canadian province of Manitoba.

"To acquire the charter granted by the Dominion Government of Canada to the Manitoba Southwestern Colonization Railway Company, including a land grant of 6,400 acres per mile, and other valuable franchises, and to build 50 miles of the prescribed line from Winnipeg in a southwesterly direction, with a view to an ultimate connection of it with the Casselton Branch line.

"3. To construct the line of the Fargo & Southwestern Railroad Company, extending from Fargo, the largest and most flourishing town in Dakota, in a southwesterly direction, through an exceedingly fertile region, across the counties of Cass, Ransom and La Moure, to the valley of the James River, which it will cross about 40 miles south of the main line of the Northern Pacific. Fifty miles of this line will be completed this year.

"4. To construct the line of the Little Falls & Dakota Railroad Company, extending from the town of Little Falls, on the St. Paul line of the Northern Pacific Railroad, in a southwesterly direction, through Morrison, Todd, Stearn and Pope counties, Minnesota, to the town of Morris in Stevens County, a distance of 80 miles. The region traversed by this line is well settled and one of the most fertile portions of the state.

"5. To complete the construction of the Northern Pacific, Fergus & Black Hills branch of the Northern Pacific, extending from Wadena station, on the Northern Pacific main line, to the town of Fergus Falls, from the last named place to Breckenridge on the Red River, and to a point 40 miles beyond, in Eastern Dakota. This line also runs through a well-settled and rich country.

"6. To build the line of the Jamestown & Northern Railroad Company, extending from Jamestown, on the main line of the Northern Pacific, 94 miles west of Fargo, in a northerly direction for a distance of 50 miles up the James River Valley, equal in fertility to the Red River Valley. No part of Dakota has attracted immigration more largely than this valley, and hundreds of new farms have been opened during the present season.

"7. To construct the line of the Columbia & Palouse Railway Company, extending from a point on the Pend d'Oreille Division of the main line of the Northern Pacific, about 38 miles northwest of the confluence of the Snake and Columbia Rivers, in an almost due easterly direction to the beautiful and well-settled portions of Eastern Washington territory, known as Palouse country. This line will ultimately be about 130 miles in length, but only 75 miles are intended to be constructed this year, in order to afford an outlet for a very large wheat crop.

"In order to provide the means required for the purchase and construction of these several branch lines the scheme was adopted which was explained to you in the circular of May 31, 1882."

This circular has been heretofore published.

The report concludes as follows: "In view of the depressed state of the market for railroad securities generally, from last summer until the latter part of the fiscal year, it was deemed inadvisable to attempt the negotiation of the company's bonds until the return of a better demand. The proper time having arrived, in the judgment of your board, toward the end of the past spring, you were offered the privilege of subscribing for bonds to be issued against mileage under construction during the year at the rate of $20,000 per mile, at 90. We are pleased to inform you that the entire amount of bonds offered, to wit, $6,000,000, has been taken, thus placing the company in ample funds to meet the entire construction expenditures during the present year.

"Your board take particular satisfaction in announcing to you, in conclusion:

"1. That the payments still due on subscriptions and the proceeds of $6,000,000 of bonds, will free the company absolutely from every sort of floating liability.

"2. That out of income and gain from every source there is already assured a total profit of about $2,000,000.

"3. That we expect the distribution of dividends to commence with the beginning of the next year."

St. Johnsbury & Lake Champlain.

This company owns a line from Lunenburg, Vt., west by North to Maquam Bay, 120 miles. It was formerly known as the Vermont Division of the Portland & Ogdensburg, and passes to the present company through foreclosure.

The company has $1,298,500 preferred stock, $2,550,000 common stock and $596,000 first-mortgage 6 per cent. bonds.

The earnings for the year ending June 30 were as follows:

	1881-82.	1880-81	Inc. or Dec.	P.c.
Freight	$165,830	$123,566	I. $42,264	34.2
Passengers	64,115	54,822	I. 9,293	16.9
Miscellaneous	12,718	212	I. 12,506	...
Total	$242,663	$178,600	I. $64,063	35.9
Expenses	199,497	126,933	I. 72,564	57.2
Net earnings	$43,166	$51,666	D. $8,501	16.4
Gross earnings per mile	2,022	1,488	I. 534	35.9
Net " " "	360	431	D. 71	16.4
Per cent. of exps	82.2	71.1	I. 11.1	....

The increase in earnings was large, but was exceeded by that in expenses, leaving a decrease in net earnings.

The income account was as follows:

Net earnings as above	$43,165.57
Interest paid	40,108.71
Surplus for the year	$3,056.86
Balance from previous year	32,290.34
Total surplus	$35,347.20

This surplus has been chiefly expended for improvements and new equipment.

A connection with the Montreal, Portland & Boston and the Southeastern roads is nearly completed, which is expected to bring much traffic to this road.

Cincinnati, Indianapolis, St. Louis & Chicago.

The following preliminary statement for the year ending June 30 has been published by this company.

The earnings for the year were as follows:

	1881-82.	1880-81.	Increase.	P.c.
Earnings	$2,525,991	$2,365,058	$160,933	6.8
Expenses	1,525,387	1,403,569	121,818	8.6
Net earnings	$1,000,604	$961,489	$39,115	4.1
Gross earn. per mile	8,505	8,298	207	2.5
Net " "	3,369	3,364	5	0.1
Per cent. of expenses	60.4	59.3	1.1	...

The increase in earnings was very considerable, and there was a gain in net earnings also. Expenses include taxes.

The income account was as follows:

Net earnings, as above		$1,000,604.03
Interest on outstanding bonds	$591,325.75	
Balance of rental account	6,732.00	
		598,057.75
Surplus		$402,546.28
Dividend, 6 per cent		360,000.00
Balance to profit and loss		$42,546.28

Dividends were paid this year on $6,000,000 stock. In the previous year the dividends paid were 4½ per cent. on $4,000,000 stock, and a surplus of $108,686.50 was carried to profit and loss.